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ABSTRACT

This packet of technology learning activity (TLA) materials on health occupations for students in grades 6-10 consists of a technology education overview, information on use, and instructor's and student's sections. The overview discusses the technology education program and materials. Components of the instructor's and student's sections are described next. The instructor's section contains background information, suggested activities and resources, and expected learner outcomes. Some of the activities are geared to "Life and Death II: The Brain" computer software. A lesson plan for the 8-day module includes assignments; equipment, tools, and supplies list; and facilities requirements or modifications. The following forms are provided: summary worksheet, pretest, posttest, test answers, and evaluation summary. A bibliography concludes the instructor's section. Topics are as follows: functions of medical facilities; general diagnostic procedures and surgical guidelines; anatomy; neurological diseases; physical examinations; and surgical operations. The student section provides materials for each day, including the following: summary of activities, assignments to turn in; goal; vocabulary; expected learner outcomes; list of objectives; list of related Technology Student Association competitive events; and academic and workplace applications reinforced by specific activities in this TLA. An optional activity concludes the student section. (YLB)

ED 380 594

Technology Learning Activity

Technology Education Series

HEALTH OCCUPATIONS

TLA TE-1124

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CIMC

Teacher Edition

Oklahoma Department of Vocational and Technical Education
1500 West Seventh Avenue
Stillwater, Ok 74074-4364

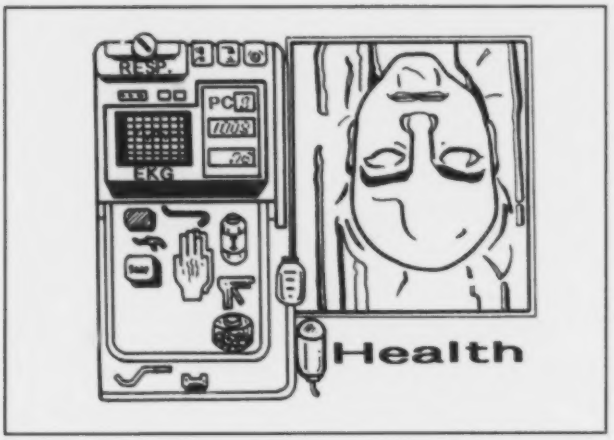
TECHNOLOGY EDUCATION

TECHNOLOGY LEARNING ACTIVITY

TE1124

HEALTH OCCUPATIONS

Suggested Time: 8 Days



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Curriculum and Instructional Materials Center
for the Technology Education Division
Oklahoma Department of Vocational and Technical Education

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FOREWORD

What will be the careers of the future? The workforce of tomorrow will be shaped by the technologies being developed today. Students today need accurate, interesting information on growing technologies in order to make informed decisions about their futures.

It is our hope that this curriculum will help improve the quality of career decisions for our students. Students are introduced to a wide range of current, "cutting-edge" technologies and are encouraged to think critically about how those technologies influence their lives and futures. Today's students do not have to become the victims of "technological illiteracy," but instead can learn to anticipate technological developments and take positive steps to prepare for the future.

Technology Learning Activities provide students with the knowledge and an introduction to the skills they need for a positive learning and career experience. Every generation is faced with learning how to manage technological advances. Information gained through participation in the *Technology Education* program can help students develop a holistic view of technology on which to base their educational and career decisions.

Roy Peters, Jr., Ed.D., State Director
Oklahoma Department of
Vocational and Technical Education

Roger Stacy, Ed.D., State Supervisor
Technology Education
Oklahoma Department of
Vocational and Technical Education

PREFACE

We believe that one of the most effective ways to improve education is through the development and implementation of a sound instructional materials system. Technology Education instructional materials represent a new design for CIMC which recognizes the importance of graphic materials in the learning process.

Technology Education instructional materials are designed for 6th through 10th grade students. The design of these materials is based on current research on how people read and gain information from documents., The design is called "New Look" and integrates both graphics and text into a balanced presentation which is easy to use and follow.

Technology Education provides the student a look at what the world will be like in the future based on technologies in use and being developed today. Throughout the Technology Education instructional materials, the students are introduced to "cutting-edge" technologies that they will use and encounter in a working environment later in life. This exposure gives them a wide range of experiences on which to base career decisions.

This publication is intended as a starting point, from which the teacher can innovate, localize, and personalize in order to prepare students for their future. The *Technology Education* series of Technology Learning Activities was written with the realization that we are creating the workforce of tomorrow by how and what we teach about technology today.

Sherry Wietelman, Curriculum Development Specialist
Curriculum and Instructional Materials Center
Oklahoma Department of
Vocational and Technical Education

Charles F. Kemnitz, President
Atlatl Communications, Inc.

ACKNOWLEDGEMENTS

The Curriculum and Instructional Materials Center (CIMC) extends its appreciation to those individuals who played important roles in the development of Technology Learning Activity materials.

Generous thanks is extended to Lynn Hawkins and Jim Harder, both Technology Education teachers at Mayfield Junior High School, for the time, talent and knowledge they contributed in determining the content of this Technology Learning Activity (TLA). We also extend our thanks to them for writing the pilot TLA upon which this TLA was based.

Thank you is also extended to the vocational educators who helped with field testing and contributed their expert input on individualized vocational instructional methods.

Alan Fillmore
Meeker High School

Jerry Lewis
Atoka High School

Ron Givens
Tulsa-Nimitz Middle School

We also thank the State Director, Dr. Roy Peters, Jr., and the Assistant State Director, Dr. Charles O. Hopkins, for their continued support throughout this project.

The school administrators who supported instructor participation in this project and/or allowed their facilities to be used as field test sites in this project deserve a special thank you, as well.

Chris Gillespie
Atoka High School

Brent Walden
Meeker High School

Marolyn Hunnicutt
Tulsa-Nimitz Middle School

Joe Shirley
Mayfield Junior High School

Oklahoma Department of Vocational and Technical Education Technology Education staff who provided leadership and direction on this project also deserve special recognition.

Roger Stacy, Ed.D.
State Supervisor
Technology Education

Donovan Bowers
Assistant State Supervisor
Technology Education

Harold Holley
Assistant State Supervisor
Technology Education

Special Recognition and gratitude is expressed to Dr. Charles F. Kemnitz who trained and coordinated the efforts of a team of technical writers on this project. His professionalism, dedication and commitment to quality instructional materials allowed us to design learning activities that students can readily use to explore new and existing technologies.

Only through the close cooperation of the Curriculum and Instructional Materials Center staff was this curriculum developed. Sincere thanks are shared with the CIMC coordinators.

Brenda Stacy, Ed.D.
CIMC Coordinator

Lynna Ausburn, Ph.D.
CIMC Development Coordinator

Special recognition and thanks are also extended to other individuals within the Oklahoma Department of Vocational and Technical Education (ODVTE) involved in the development and distribution process: Noel Wilcoxson, Duane "Frosty" Foster and Diane Ensign and their staffs at the ODVTE Print Shop; Bob Davis and staff artist Kathryn Moore for the cover design; Darrel Stiles and his staff in the ODVTE Warehouse for packaging and coordinating transportation and distribution of these materials; and Rose Primeaux and her staff in Word Processing.

Finally, a big thank you to all ODVTE team members who offer their support on a daily basis in "behind-the-scenes" ways but never seem to be recognized for their contributions: Suzanne Perry and Terri Tomson, CIMC secretaries; Karen Heppel and Shirley Hill, Technology Education secretaries.

Sherry Wietelman
Curriculum Development Specialist
Curriculum and Instructional Materials Center
Oklahoma Department of Vocational and Technical Education

TECHNOLOGY EDUCATION OVERVIEW

About the Program

Because the American culture is distinctly characterized as technological, it becomes the function of our schools to give every student an insight into and an understanding of the technological nature of the culture. Technology Education strives to perform this function.

Technology Education in Oklahoma is an instructional program that provides young men and women (grades 6 - 10) with daily, hands-on exploratory experiences and insights into technology and career opportunities so that they can make meaningful occupational and educational choices. It is a program which can enhance the educational experience of all students, whether they are the valedictorian/honor-type student, the middle range/average student, or the student who has found little success in school, namely the at-risk student.

Technology Education acquaints all students with their technological environment so they can make rational decisions about their own lives on a day-to-day basis and participate in controlling their own destiny. The program directs students to related technological and industrial fields, enabling students to realize their full potential and make maximum use of their individual talents in fulfilling career goals in their selected areas of employment.

Technology education capitalizes on the individual's potential for reasoning and problem solving, for imagining and creating, and for constructing and expressing through the use of tools and materials related to technology. It develops content and

TECHNOLOGY EDUCATION OVERVIEW

experiences to contribute to the growth and development of students commensurate with their potential. Thus, Technology Education is a basic and fundamental study for all persons in regard to career explorations and educational opportunities.

Opportunities to develop and apply leadership, social, civic, and technologically related skills are provided through the Technology Student Association (TSA). TSA is the appropriate vocational student organization identified as a teaching tool for teachers to use in assisting students to achieve identified course competencies. Competency-based activities are an integral part of the instructional program.

All Technology Education courses are taught in a one-period block of time (45-55 minutes), with each of the four Technology systems (communication, construction, manufacturing, and transportation, energy and power) being designed to provide a means through which other courses such as math, science, English, and social studies can be applied in a practical manner within a technology-based situation. Teaching across the curriculum is vital to the success of a Technology Education program.

TECHNOLOGY EDUCATION OVERVIEW

About the TLAs

The *Technology Education* series consists of 40 Technology Learning Activities (TLAs) for instruction and a supplemental activities book. Each TLA is divided into two parts: an instructor's guide and a student guide. The instructor's guide provides an overview of Technology Education, a summary of activities and supplies needed for students to complete the Technology Learning Activity, a supplies and materials worksheet for the instructor, an overview of the particular TLA, written exam answer sheets, and evaluation summary for the TLA.

Master copies of the evaluation summary sheets, pretest and posttest, and supplies and materials worksheets are provided with this instructor's edition of the TLA. These sheets may be reproduced for classroom use.

All of the TLAs focus on measurable and observable learning outcomes. Instructors are encouraged to supplement, personalize, localize, and motivate with these materials in order to develop a complete teaching/learning process.

TLAs are designed for use in more than one class period of instruction. Careful study of each TLA by the instructor will help her or him determine the following:

- Skills to demonstrate
- Supplies and equipment needed

TECHNOLOGY EDUCATION OVERVIEW

- Amount of time needed for student practice
- Workstation Bookshelf, Instructors Reference Materials, and a bibliography are provided for supplemental resources
- Supplementary materials, including print and non-print media to order
- Resource people to contact
- Facility modifications which may be necessary to administer the TLA

Each TLA is based on performance objectives. Performance objectives are specific, stating the performances necessary to meet the goal of the TLA.

The overall goal of the unit tells what the student should be able to do and what standard will be used to determine whether the student has achieved competency. The specific objectives outline the sequence of the competencies required to meet the TLA goal. The competencies may be either cognitive, requiring knowledge only, or psychomotor, requiring knowledge and skill.

TECHNOLOGY EDUCATION OVERVIEW

About Ordering TLAs

Additional TLAs in the *Technology Education* series may be ordered through the Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1500 West Seventh Avenue, Stillwater, OK 74074-4364. Phone 1-800-522-5810.

NOTE: The 1100- and 1200-series numbers given on the next page are for ordering TLA Instructor's Editions; to order Student Editions, change the first two numbers to 31 (for 8-Day TLAs) or 32 (for 6-Week TLAs).

TECHNOLOGY EDUCATION OVERVIEW

TLA Title	Order No.
8-DAY TLAs	
Aerospace and Flight	TE1117
Agricultural Education	TE1123
Audiovisual Programming	TE1131
CAD — Autocad Release 10	TE1114
Career Search	TE1104
Drafting	TE1134
Electricity — Principles and Applications	TE1105
Electronic Publishing	TE1135
Electronics (CES)	TE1106
Fluidics Technology	TE1116
Health Occupations	TE1124
Home Economics	TE1125
Introduction to VoTech	TE1122
Introduction to Animation	TE1132
Keyboarding and Computer Application	TE1115
Laboratory Safety for Construction Technology	TE1107
Laser/Fiber Optics/Holography	TE1129
Lasers Technology	TE1103
Marketing Education	TE1126
Material Processes — Plastics	TE1133
NASA Aerospace-Spacelink	TE1111
Photography	TE1130
Problem Solving	TE1110
Research and Design	TE1101
Residential Construction	TE1121
Robotics — Control Technology	TE1112
Robotics — ProArm	TE1113
Structural Engineering	TE1102
Synergetic Technology	TE1120
Technical Report Writing	TE1118
Technology Challenge	TE1109
Thermal Screen Printing	TE1119
Trade and Industrial Education	TE1127
TSA Leadership	TE1108
Vocational Business	TE1128
6-WEEK TLAs	
Animator	TE1203
CAD/Board Drafting	TE1201
Control Technology	TE1202
Electronics/Electricity/Robotics	TE1204
Electronic Publisher	TE1205

TECHNOLOGY EDUCATION OVERVIEW

Corrections and Suggestions

CIMC wants to provide Technology Education instructors and students materials that are accurate and effective. Although the CIMC strives to maintain the highest standards of development and production, oversights occasionally do occur. If you find any errors in this or other CIMC publications or have suggestions for improving their usefulness, please notify the CIMC staff. One easy way of pointing out errors is to make a photocopy of the affected page and indicate the correction on the copy. Mail this information to the CIMC, where it will be used to correct the publication before the materials are reprinted.

To ensure that the material is updated on a timely basis, notify the CIMC of necessary corrections as soon as possible. Do not assume that someone else will notice the error and inform the CIMC; other users may be making the same assumption. Please send corrections and recommendations for improving this publication to the following address:

Curriculum Development Coordinator
Curriculum and Instructional Materials Center
Oklahoma Department of Vocational and Technical Education
1500 West Seventh Avenue
Stillwater, Oklahoma 74074-4364

USING THIS PUBLICATION

INSTRUCTOR'S SECTION

Background Information

The background information component provides instructors with basic information about the subject of the TLA. Instructors are encouraged to use suggested resources for additional information on the specific technology used in each TLA.

Expected Learner Outcomes

There are 19 Expected Learner Outcomes for the *Technology Education* series. Not every TLA fulfills all 19 Expected Learner Outcomes, so outcomes specific to each TLA are listed in the Instructors Section and in the Student's Section. The 19 Expected Learner Outcomes for the *Technology Education* series are:

- The student will know and appreciate the importance of technology and technological literacy.
- The student will explore career opportunities so they can make meaningful occupational choices.
- The student will explore future educational opportunities so they can make meaningful educational choices.
- The student will apply problem solving and critical thinking techniques.
- The student will apply math, science, reading, and other school subjects in a practical situation.
- The student will develop keyboarding and computer literacy skills.

USING THIS PUBLICATION

INSTRUCTOR'S SECTION

- The student will develop basic skills in the safe and proper use of tools, machines, materials, processes, and technical concepts.
- The student will recognize and develop individual talents.
- The student will think logically and sequentially.
- The student will develop leadership, creative abilities, positive self-concepts, and individual potential in a technological society.
- The student will become a more sophisticated consumer of the goods and services of a technological society.
- The student will adjust to a changing technological environment.
- The student will develop an understanding and the ability to adapt to those technological forces that influence life in the 21st Century.
- The student will develop an understanding of economic development.
- The student will communicate by making clear and relevant points through the development of mental process skills.

USING THIS PUBLICATION

INSTRUCTOR'S SECTION

- The student will apply design, imagination, and creative abilities.
- The student will learn applications of lifelong learning skills.
- The student will think globally and act locally.
- The student will explore the organization and management systems of business and industry.

Suggested Activities

The suggested activities component is to assist during the preparation stage of the teaching/learning process. The activities provide suggestions for preparation and evaluation during the instructional process. The instructor should read the suggested activities before assigning the TLAs to allow time to obtain supplemental materials, prepare audiovisual materials, and contact outside resource persons. Duties of the instructor will vary according to the particular TLA.

USING THIS PUBLICATION	INSTRUCTOR'S SECTION
Suggested Resources	Suggested resources include people and print and non-print media that may be used with the TLA. References used during the development of each TLA are also provided. The instructor can use suggested resources and TLA references to supplement her or his knowledge of the subject to help students with particular interests or objectives in the area covered. Please note that suggested resources and references listed in this publication existed when this publication was written. CIMC assumes no responsibility for providing these materials and cannot ensure the availability of these materials as individual vendors, manufacturers, and publishers may discontinue these products at any time.
Instructional Sequence	This component provides instructors with daily lesson plans for the TLA. Included in the instructional sequence component are suggested daily assignments and equipment, tools, and supplies that will be needed for each student. A column for facility requirements or modifications is provided for each instructor. This component is provided as a guide to plan for and monitor students' progress through the TLA.
Equipment, Tools, and Supplies: Summary Worksheet	This component is provided as a planning tool for instructors. It provides instructors with a list of the necessary equipment, tools and supplies to support student activities and provides specific information for budgeting purposes.

USING THIS PUBLICATION	INSTRUCTOR'S SECTION
Pretest and Posttest	These components provide criterion-referenced evaluation of the objectives listed in each TLA. If objectives or activities have been added, deleted, or modified, appropriate changes should be made on the tests.
Test Answers	This component is provided to assist instructors in evaluating student performance on written tests.
Evaluation Summary	This component is provided to assist instructors in summarizing the performance of each student on an individual basis. The evaluation summary forms are also provided as photocopy masters for the instructors use.

USING THIS PUBLICATION

STUDENT'S SECTION

Introduction

Daily activities are the step-by-step procedures students will follow to complete the learning experience. Each TLA is organized by daily tasks and activities. Students are able to pace their progress through the TLA by referring to the activities for the day.

Within the daily activity pages are components common to all TLAs.

Summary of Activities

A Summary of Activities page begins each day of the TLA. This page provides several important pieces of information for both the student and instructor.

❶ In the left column this page provides the student with a list of activities to be accomplished that day.

❷ In the right column the major Academic and Workplace Application which applies to that day's activities is graphically indicated with a standard icon.

❸ Below the icon is a list of specific skills reinforced during that day's activities.

USING THIS PUBLICATION	STUDENT'S SECTION
Pretest Instructions	The students are required to take a Pretest as one of the first day's activities. The instructions for the Pretest are given in this section.
Assignments to Turn In	Day One includes a list of all assignments the students are expected to turn in during or at completion of the TLA. This list includes all tests, activities, and products covered in the TLA.
Goal	On Day One, following the assignments checklist, is a concise statement of the overall goal of the TLA. This statement summarizes the purpose for completing the TLA and encourages the student to think about the broader implications of the learning experience.
Words You Should Know	The first day's activities include a glossary of unfamiliar technical terms used in the TLA. Often these terms are necessary for the student in order to accurately follow instructions in the activity procedures. The students should be encouraged to review this glossary and refer to it often during the course of the TLA.

USING THIS PUBLICATION	STUDENT'S SECTION
Expected Learner Outcomes Reinforced by this TLA	As stated in the guide to the Instructor's Section, there are 19 identified Expected Learner Outcomes associated with the *Technology Education* series. This section of Day One activities lists the Expected Learner Outcomes that specifically apply to the TLA. A student who reviews this list will gain a better understanding of the scope of experiences and skills to be gained from the TLA.
Objectives	Each TLA is made up of a set of measurable objectives. In this section on Day One, students are given a list of all the objectives addressed in the TLA. This list can serve to introduce students to the "flow" of the TLA as they build introductory skills in a technology.
Related TSA Competitive Event(s)	Each TLA may be used by students to begin work toward completion of a Technology Student Association competitive event. Some TLAs are tied to a specific TSA event; other TLAs may be used with several events. This Day One section gives the student and instructor a list of appropriate TSA events which the TLA may support. TSA competitive events promote leadership development, and an understanding that winning isn't everything but involvement is. Events are staged at Local, Regional, State, and National levels through which the student may progress.

USING THIS PUBLICATION

STUDENT'S SECTION

Academic and Workplace Applications

The curricular content and activities found in this Technology Learning Activity help students apply academic and workplace competencies. These competencies include: Reading Skills, Writing Skills, Mathematics Skills, Science Skills, Oral Communications Skills, Interpersonal or Relating Skills, Creative Thinking and Problem Solving Skills, Employability Skills, and Social Studies Skills.

Preparing students to enter successfully into today's world ...

Preparing students to enter successfully into today's world of work offers vocational education a substantial challenge. The contemporary workplace is characterized by constant and rapid technological change and by increasing job complexity and skill intensity. Due to rapid technological advancement, the half-life of work skills is now reduced to a bare three to five years. Out of this new workplace environment has arisen a growing national awareness of the critical importance of an American workforce armed with the skills necessary to survive in a competitive economy.

... emergence of a renewed emphasis on basic academic skills ...

One result of this national awareness has been the emergence of a renewed emphasis on basic academic skills in all areas of education. Pressure to increase academic skill development is being placed on education by both legislative action and industry mandate. The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 sets stringent academic and workplace skill requirements for vocational education. State legislatures are increasingly requiring basic skills accountability by teachers and school administrators.

USING THIS PUBLICATION	STUDENT'S SECTION
... expected learner outcomes are being implemented with increasing frequency.	Graduation exams, minimum competency requirements, and expected learner outcomes are being implemented with increasing frequency. In addition, business and industry are delivering the message clearly to educators that vocational competence now requires increased strength in academic and workplace skills.
The issue of basic skills ... was successfully addressed in a national three-year study ...	The issue of the basic skills currently required in the work place was very successfully addressed in a national three-year study conducted jointly by the American Society of Training and Development (ASTD) and the U.S. Department of Labor (DOL). The findings of this study were published in 1990 in the book, *Workplace Basics: The Essential Skills Employers Want.*
... research indicates clearly that American employers ... need a variety of skills ...	The ASTD/DOL research indicates clearly that American employers have discovered that their workforces need a variety of skills that include, but are not limited to, the classic academic trio of reading, writing, and computation. Employers now are also looking for competence in areas such as "learning to learn," problem solving and critical thinking, interpersonal and teamwork skills, oral communication and listening techniques, and the social and personal management skills that demonstrate a capacity for independence and responsibility in on-the-job performance.

USING THIS PUBLICATION	STUDENT'S SECTION
... business and industry have expanded and re-defined "workplace basics."	It is clear that the requirements of today's business and industry have expanded and re-defined "workplace basics." It is in line with this re-definition, and with the competency requirements of current education legislation, that the Oklahoma Department of Vocational and Technical Education has chosen to address "basic skills" in the instructional materials produced by its Curriculum and Instructional Materials Center.
CIMC materials contain information and activities which develop academic and workplace application competencies ...	It is not a new development for CIMC materials to contain information and activities which develop academic and workplace application competencies in students undertaking vocational programs. What is new is the specific marking, or flagging, of items in our instructional materials that address academic and workplace application skills.
To assist teachers and students in identifying activities which promote academic and workplace skills ...	To assist teachers and students in identifying activities which promote academic and workplace skills development, CIMC has implemented a marking system which uses simple graphic symbols, or icons. These icons are located in the right margins of Activity Sheets. The following is an explanation of the icons and the kinds of academic and workplace application activities they indicate.

USING THIS PUBLICATION

READING SKILLS: Skills involving use of print resource material for obtaining and applying information.

WRITING SKILLS: Skills involving written communication of processes, information, or ideas.

MATHEMATICS SKILLS: Skills involving computation, calculation, and interpretation of numerical data.

STUDENT'S SECTION

Current vocational education literature indicates that functional literacy as a workplace basic needs to be defined in terms of reading competencies actually required for job performance. The activities identified with this icon as addressing reading skills in CIMC materials deal specifically with developing reading skills in an applied, job-related context. These range from general information-gathering activities to tasks requiring use of specific technical reference materials. Many contain a "learning to learn" aspect, which promotes engaging actively and purposefully in vocationally relevant enquiry.

Tasks identified with this icon promote development of skills in written communications. As with reading skills, the writing skills emphasized in CIMC materials have a vocational context. They include filling out forms, keeping work activity records, writing simple memos and letters, generating more complex reports and articles, and written expression of ideas and concepts related to vocational performance or exploration.

This icon identifies activities which develop vocationally-related skills in computation, measurement and estimation, selection and application of appropriate mathematical processes, and collecting, displaying, or interpreting data.

USING THIS PUBLICATION

SCIENCE SKILLS: Skills involving mastery and application of scientific information or theory.

ORAL COMMUN -ICATION SKILLS: Skills involving speaking and listening.

INTER-PERSONAL OR RELATING SKILLS: Skills involving working and getting along with others.

STUDENT'S SECTION

This icon marks activities which are related to the development of skills in either the physical or biological sciences. These skills stress occupationally-related applications of science and technology.

Activities marked with this icon promote development of effective speaking and listening. They include practice in such areas as speaking techniques, word choice, non-verbal messages, use of communication media, and using active listening techniques. Many of these activities promote "learning to learn" skills in verbal enquiry.

Activities which deal directly with skills in relating to others are marked with this icon. This includes areas such as multi-cultural awareness, group processes and dynamics, negotiation, dealing with conflict, cooperation and teamwork, values and attitudes, and leadership and motivation.

USING THIS PUBLICATION

CREATIVE THINKING AND PROBLEM SOLVING SKILLS: Skills involving comprehending, applying, analyzing, and developing complex ideas and situations.

EMPLOY-ABILITY SKILLS: Skills involving choosing, obtaining, and succeeding in a career.

SOCIAL STUDIES SKILLS: Skills involving investi-gation and application of social concepts.

STUDENT'S SECTION

This icon identifies activities which stress development of higher-order thought processes such as problem identification and analysis, lateral thinking, evaluating alternatives, developing solutions, examining assumptions, and evaluating outcomes.

Activities marked with this icon relate to competencies required to obtain employment and develop a career. These competencies include specific occupational tasks. They also include items such as career analysis and selection, job searching, completing applications and resumes, interviewing, and business etiquette and personal management skills required for job-keeping and maturing in one's work. Examples of the latter category include personal presentation, self-discipline, work accuracy, reliability, discretion, punctuality, stress handling, judgement, confidence, etc.

This icon marks activities which stress competencies in fields relating to human society and its distribution and relationships. This includes areas such as history, geography, government and politics, economics, psychology, sociology, demographics, current events, cross-cultural studies, consumer issues, environmental issues, and ethical concerns in science and technology.

USING THIS PUBLICATION

Impact Statements

STUDENT'S SECTION

There are five areas of human culture for which each TLA has an impact. These impact statements appear during Day Eight, after the student has gained some familiarity with the technology.

1. *ENVIRONMENTAL IMPACT:* A statement introducing the student to the impact of the technology on the environment.

2. *SOCIAL/CULTURAL IMPACT:* A statement concerning the impact of the technology on society and culture.

3. *ECONOMIC IMPACT:* A statement concerning the impact of the technology on the economy.

4. *POLITICAL IMPACT:* A statement concerning the impact of the technology on politics, laws, and regulations, and the impact of politics on the development of the technology.

5. *ERGONOMIC IMPACT:* A statement concerning the ergonomic implications of the technology. Ergonomics is the study of developing products and systems that meet people's needs.

USING THIS PUBLICATION	STUDENT'S SECTION
	Impact Statements offer the student the opportunity to see beyond the activities in the Technology Learning Lab and glimpse the real-world applications of the technology.
Career Search	Also on Day Eight, the students are given the assignment of investigating several career opportunities related to the technology of the TLA. The investigation is done with *Career Search Abstracts.* A list of up to five careers related to the TLA is given, followed by pages from *Career Search Abstracts* that detail the career qualifications and work environment. The student is required to choose two of the five related careers, read the appropriate abstracts, then write a short essay about why those careers may be appealing.
Posttest Instructions	The students are required to take a Posttest as one of the last day's activities. The instructions for the Posttest are given in this section. The score for the Posttest may be compared to the score for the Pretest to help determine the student's gain during the TLA.

USING THIS PUBLICATION

Skunk Works

STUDENT'S SECTION

Skunk Works, a Day Eight optional activity, includes instructions that could be used for solving problems or reinforcing the enrichment of learning.

The term Skunk Works was coined by engineers at 3M Corporation in the mid-1960s. Some engineers wanted to develop a new product, but company management would not give them the time or money to work on the project. So the engineers "borrowed" time and money from approved projects to work on their "Skunk Works." When they finished developing the product, they presented it to management and it has been a 3M product ever since. The product: Velcro fasteners.

HAZARD ALERT MESSAGES

The Daily Activities include hazard alert information specific to the Activity. These messages should be discussed carefully and thoroughly. The Hazard Alert Message system used in the TLA is based on the American National Standards Institute (ANSI) Standard Z535, which provides for five levels of alert.

Students are introduced to the ANSI Hazard Alert Message system as an activity in the Laboratory Safety for Construction Technology TLA (TE1107/TE3107). This system was adopted by ANSI as the standard in 1990 and will be the hazard alert system in use when students reach the workplace.

Hazard Alert Messages in the TLA are indicated both by the color red and graphically. There are three types of hazard alert graphics used in the TLA: the hazard alert symbol, injury hazard graphics, and avoidance graphics.

Hazard Alert Symbol

This Hazard Alert Symbol is used with the words DANGER, WARNING, and CAUTION. ANSI defines these words as:

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

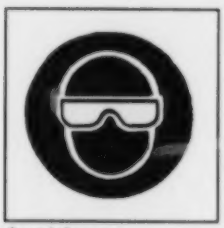
WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

HAZARD ALERT MESSAGES

Injury Hazard Graphic

There are two types of graphics used in conjunction with the hazard alert symbol. This type of graphic depicts a specific injury that may be expected if the hazard described in the alert is not avoided.



Avoidance Graphic

This second type of graphic is called an avoidance graphic. It depicts an action the student should take in order to avoid injury.

There are two other ANSI words used in the TLAs and the students should understand their meanings:

NOTICE indicates an action that could result in damage to property or equipment.

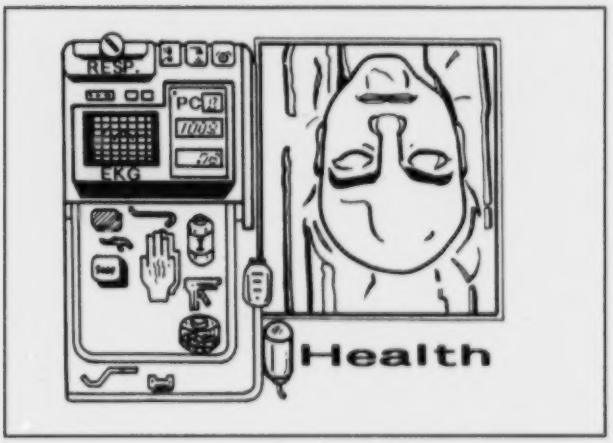
IMPORTANT indicates an instruction that can help the student do a better job.

TECHNOLOGY EDUCATION

HEALTH OCCUPATIONS

TE1124/TE3124

INSTRUCTOR'S SECTION



BACKGROUND INFORMATION

None of us can go through our life without getting ill. When we are sick, we all experience the need for someone's help. Health occupations are professions which help patients satisfy their physical, as well as mental, needs.

The purpose of this Health Occupations TLA is to help the student to learn about medical professions, particularly health occupations, hospital procedures, and surgical procedures.

This unit uses the computer program *Life & Death II: The Brain.* The student should note that the program reinforces the learning of the information given in this TLA and gives the student some "hands-on" experience in the medical profession.

Life & Death II: The Brain, as its name suggests, focuses on brain surgeries. Besides learning hospital procedure, the student will learn about neurological diseases and their diagnoses, as well as neurological surgeries to treat these diseases.

Through using this program, the student will have an idea about health occupations and see if he or she is interested in any of these professions.

INSTRUCTOR'S SECTION

EXPECTED LEARNER OUTCOMES

1. The student will know and appreciate the importance of technology and technological literacy.

2. The student will explore career opportunities so he or she can make meaningful career choices.

3. The student will explore future educational opportunities so he or she can make meaningful educational choices.

4. The student will apply problem-solving and critical thinking techniques.

5. The student will apply math, science, reading, and other school subjects in a practical situation.

6. The student will develop basic skills in the safe and proper use of tools, machines, materials, processes, and technical concepts.

7. The student will recognize and develop individual talents.

8. The student will think logically and sequentially.

INSTRUCTOR'S SECTION

SUGGESTED ACTIVITIES

- ✓ Obtain materials to supplement TLA.

  Note: See Suggested Resources for books to supplement this module.

- ✓ Review instructional outline for this TLA. Modify time frames to suit class needs and plan activities for each class period.

- ✓ Study the specific objectives to determine those you will cover in your presentation. Decide also which objectives should be taught to which students.

- ✓ Determine scope and sequence of objectives that you add to the TLA. Design and develop support materials, including evaluation techniques, for additional objectives.

- ✓ Determine how you will schedule time for students to demonstrate competence in the required procedures.

- ✓ Make arrangements for guest speakers. Supply speakers with specific objectives and other appropriate sections of this TLA.

- ✓ Have students name the medical professions they are familiar with.

INSTRUCTOR'S SECTION

PREPARATION

SUGGESTED ACTIVITIES

- ✓ Load the *Life and Death II* program on the computer hard drive. Make sure the program is loaded in the directory "C:\LD2>."

INSTRUCTOR'S SECTION

SUGGESTED RESOURCES

Committed to serve the underserved. U.S. Department of Health and Human Services: Washington, D.C., 1984.

Tests on the Pathway to a Health Career. Health Resources and Services Administration: Rockville, MD, 1989.

The 1988 State Plan for Achieving Excellence in Health: Goals for 1992. Oklahoma Health Planning Commission: Oklahoma City, OK, 1988.

INSTRUCTOR'S SECTION

INSTRUCTOR'S REFERENCE MATERIALS

Instructional Sequence	Technology Education: Health Occupations		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Day 1	Take Pretest. Read and study the Assignment Checklist, Goal, Words You Should Know, Expected Learner Outcomes, Objectives, TSA Competitive Events, and Academic and Workplace Skills.	Computer score card/sheet for Pretest	
Day 2	Study the Information Sheets. Complete Activity Report. Describe the functions of the following medical facilities: a) the CAT scanner, b) the Magnetic Resonance Imager, c) the radiology lab, and d) the angiography lab.	*Computer program: Life & Death II* Paper: 8.5" x 11", 2 sheets Pencil	

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Instructional Sequence	Technology Education: Health Occupations		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Day 3	Complete Objective 1: Access the instructional menu in the program to obtain such information as general diagnostic procedures and surgical guidelines. Complete Objective 2: Correctly identify the components of the head. Complete Objective 3: Distinguish among different neurological diseases, their causes, symptoms, and treatments and answer the test questions that follow. Complete Study Questions 11 - 20.	Computer program: *Life & Death II* Computer scan sheet Pencil	
Day 4	Complete Objective 4: Use the program to perform a physical examination of a patient. Complete Activity Report: Write a paragraph explaining the importance of the patient's chart and physical examination.	Computer program: *Life & Death II* Paper: 8.5" x 11", 2 sheets Pencil	

BEST COPY AVAILABLE

Instructional Sequence	Technology Education: Health Occupations		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Day 5	Complete Objective 5: Select an operating team to perform an operation so that the team members can cooperate with each other to perform a successful operation. Complete Activity Report: Describe why you chose such a surgical team to perform an operation on the patient to whom you performed a physical examination. Complete Objective 6: Identify common surgical tools, their functions, and their uses. Complete Study questions 21-30.	Computer program: *Life & Death II* Paper: 8.5" x 11", 2 sheets Pencil	
Day 6	Complete Objective 7: Read about basic operating procedures and be able to answer questions based on what you read. Complete Study Questions 31 - 35.	Computer program: *Life & Death II* Computer scan sheet Pencil	
Day 7	Complete Objective 8: Form an opinion as to whether or not you would enjoy working in a health occupation and, using correct grammar and spelling, explain your decision in a 1-page essay.	Computer program: *Life & Death II* Paper: 8.5" x 11", 2 sheets Pencil	

BEST COPY AVAILABLE

Instructional Sequence	Technology Education: Health Occupations		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Day 8	Complete any incomplete assignments. Read Impact Statements. Complete Career Search Activity. Take Posttest and spelling test. Complete Skunk Works.	Computer score card/sheet for Posttest and Spelling Test Twenty 3" x 5" note cards One poster board (about 27" x 22") Rubber cement Ruler Marker	

Equipment, Tools, and Supplies:
Summary Worksheet

Equipment, Tools, and Supplies	Per Student	Per Period	Total Needed	Special Considerations	Cost per Student	Cost per Period	Total Cost	Special Considerations
Life & Death II: The Brain	1			Backup copies				
Pencil	1							
Computer score card/sheet	1							
Paper (8.5" x 11")	2			Wastage				
Note cards (3" x 5")	15			Wastage				
Poster board (about 27" x 22")	1			Wastage				
Ruler	1							
Rubber cement	1							
Marker	1							

PRETEST

1. Success of a medical operation depends only on the expertise of the surgeon.

   a) True
   b) False

2. Which of the following should a doctor do on a patient before performing an operation?

   a) Blood transfusion
   b) Anesthesia
   c) Lidocaine or atropine injection
   d) All of above

3. A doctor can place a medical order verbally without his or her signature when the doctor is busy.

   a) True
   b) False

4. A doctor needs to study a patient's symptoms because

   a) they can accurately reflect the patient's illness.
   b) symptoms are the only information that the doctor needs to determine proper treatment the patient receives.
   c) they help the doctor understand the patient's illness.
   d) All of above

INSTRUCTOR'S SECTION

PART 1

PRETEST

INSTRUCTOR'S SECTION

PART 2

5. It is important to keep a bacteria-free environment for a patient during surgery because

   a) invasion of bacteria may cause complications.
   b) bacteria will cause infection.
   c) bacteria will delay the patient's recovery.
   d) All of above.

6. Which of the following is/are medical profession(s)?
   - Nurse
   - Physical therapist
   - Physician
   - Health administrator

   Choose the best answer from the following to the above question:

   a) 1, 2, and 3 only
   b) 2 and 3 only
   c) 3 only
   d) All of above

7. Which of the following is FALSE about health professions?

   a) Health professions take a lot of time and commitment.
   b) Becoming a surgeon requires a college degree and an average of 6 to 7 years in medical school.
   c) A doctor may schedule his or her own work hours.
   d) Health professions can save somebody's life.

PRETEST

INSTRUCTOR'S SECTION

PART 3

8. Which of the following CANNOT help provide an aseptic environment?

   a) Surgical gloves.
   b) Soap.
   c) Glasses.
   d) Surgical gown.

9. Which of the following is/are the purpose(s) of medical treatment?

   a) To cure the patient's disease.
   b) To help the patient understand his or her disease.
   c) To help the patient resume his or her normal life.
   d) All of above.

10. Neurology is the study of

   a) the heart.
   b) the nervous system.
   c) the eyes.
   d) the digestive system.

POSTTEST

36. Success of a medical operation depends only on the expertise of the surgeon.

    a) True
    b) False

37. Which of the following should a doctor do on a patient before performing an operation?

    a) Blood transfusion
    b) Anesthesia
    c) Lidocaine or atropine injection
    d) All of above

38. A doctor can place a medical order verbally without his or her signature when the doctor is busy.

    a) True
    b) False

39. A doctor needs to study a patient's symptoms because

    a) they can accurately reflect the patient's illness.
    b) symptoms are the only information that the doctor needs to determine proper treatment the patient receives.
    c) they help the doctor understand the patient's illness.
    d) All of above

INSTRUCTOR'S SECTION

PART 1

POSTTEST

INSTRUCTOR'S SECTION

PART 2

40. It is important to keep a bacteria-free environment for a patient during surgery because

    a) invasion of bacteria may cause complications.
    b) bacteria will cause infection.
    c) bacteria will delay the patient's recovery.
    d) All of above.

41. Which of the following is/are medical profession(s)?

    - Nurse
    - Physical therapist
    - Physician
    - Health administrator

    Choose the best answer from the following to the above question:

    a) 1, 2, and 3 only
    b) 2 and 3 only
    c) 3 only
    d) All of above

42. Which of the following is FALSE about health professions?

    a) Health professions take a lot of time and commitment.
    b) Becoming a surgeon requires a college degree and an average of 6 to 7 years in medical school.
    c) A doctor may schedule his or her own work hours.
    d) Health professions can save somebody's life.

POSTTEST

INSTRUCTOR'S SECTION

PART 3

43. Which of the following CANNOT help provide an aseptic environment?

    a) Surgical gloves.
    b) Soap.
    c) Glasses.
    d) Surgical gown.

44. Which of the following is/are the purpose(s) of medical treatment?

    a) To cure the patient's disease.
    b) To help the patient understand his or her disease.
    c) To help the patient resume his or her normal life.
    d) All of above.

45. Neurology is the study of

    a) the heart.
    b) the nervous system.
    c) the eyes.
    d) the digestive system.

POSTTEST

46. Infarcation
47. Migrane
48. Nurology
49. Radialogy
50. Tumer
51. Sinsory
52. x ray
53. Reflex
54. Aneurism
55. Subdural hematoma

INSTRUCTOR'S SECTION

SPELLING TEST

TEST ANSWERS

1. B
2. B
3. B
4. C
5. D

6. D
7. C
8. C
9. D
10. B

11. A
12. B
13. D
14. B
15. B

16. C
17. A
18. C
19. C
20. D

INSTRUCTOR'S SECTION

PRETEST ANSWERS

DAY 3 STUDY QUESTIONS

TEST ANSWERS

21. E
22. C
23. I
24. F
25. B

26. H
27. D
28. A
29. J
30. K

31. C
32. B
33. D
34. C
35. A

36. B
37. B
38. B
39. C
40. D

41. D
42. C
43. C
44. D
45. B

INSTRUCTOR'S SECTION

DAY 5 STUDY QUESTIONS

DAY 6 STUDY QUESTIONS

POSTTEST ANSWERS

TEST ANSWERS

46. B
47. B
48. B
49. B
50. B

51. B
52. B
53. A
54. A
55. A

INSTRUCTOR'S SECTION

SPELLING TEST

EVALUATION SUMMARY

10 POINTS EACH:

Pretest ____

Career Search ____

Day 2 Activity Report: Access the instructional menu in the program to obtain information on the functions of medical facilities. ____

Day 3 Activity Report: Identify correctly the components of the head. ____

Day 4 Activity Report: Use the program to perform a physical examination of a patient and write paragraph describing what further tests the patient needs. ____

Day 5 Activity Report: Describe why you chose such a surgical team to perform an operation on the patient on whom you performed a physical examination. ____

Day 7 Activity Report: Write a 1-page essay describing your thoughts about health occupations and say whether you would or would not like to enter one of these occupations. ____

INSTRUCTOR'S SECTION

1. PROCESS EVALUATION

1. PROCESS EVALUATION SCORE ____

EVALUATION SUMMARY

Use the following conversion table to convert Process Evaluation scores to percentiles.

70 = 100.0%
69 = 98.6
68 = 97.1
67 = 95.7
66 = 94.3

65 = 92.9
64 = 91.4
63 = 90.0
62 = 88.6
61 = 87.1

60 = 85.7
59 = 84.3
58 = 82.9
57 = 81.4
56 = 80.0

55 = 78.6
54 = 77.1
53 = 75.7
52 = 74.3
51 = 72.9

50 = 71.4
49 = 70.0
48 = 68.6
47 = 67.1
46 = 65.7

45 = 64.9
44 = 62.9
43 = 61.4
42 = 60.0

INSTRUCTOR'S SECTION

1. PROCESS EVALUATION
(Continued)

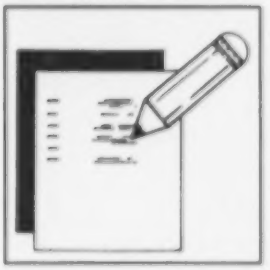
CONVERSION TABLE

EVALUATION SUMMARY

Posttest score = _____

INSTRUCTOR'S SECTION

2. WRITTEN EVALUATION



2. Written Evaluation Score

_____

EVALUATION WORKSHEET

1. Process evaluation score = _____

2. Written evaluation score = _____

3. Total score = _____

Total Score for TLA =

1 + 2 = 3

Total Score/2 = Score

TLA SCORE _____

BIBLIOGRAPHY

Committed to serve the underserved. U.S. Department of Health and Human Services: Washington, D.C., 1984.

Tests on the Pathway to a Health Career. Health Resources and Services Administration: Rockville, MD, 1989.

The 1988 State Plan for Achieving Excellence in Health: Goals for 1992. Oklahoma Health Planning Commission: Oklahoma City, OK, 1988.

INSTRUCTOR'S SECTION

TECHNOLOGY EDUCATION

TECHNOLOGY

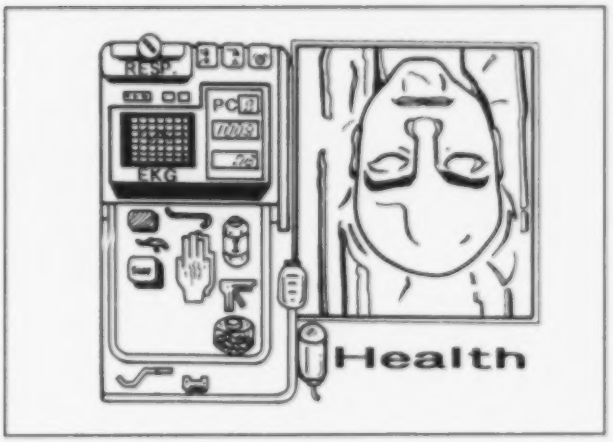
LEARNING

ACTIVITY

TE3124

HEALTH OCCUPATIONS

Suggested Time: 8 Days



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TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1 ACTIVITIES

On Day 1 you should complete the following activities:

1. Complete Pretest
2. Read Assignments to Turn In (items to complete in 8 days)
3. Read Goal
4. Read Words You Should Know
5. Read Expected Learner Outcomes
6. Read Objectives
7. Read Related TSA Competitive Events
8. Read Academic and Workplace Applications

SUMMARY OF ACTIVITIES

Reading Comprehension Skills:
- Gain factual information
- Make generalizations

Functional Reading Skills:
- Follow written instructions
- Interpret graphics

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1 ACTIVITIES

PRETEST

INSTRUCTIONS

You will need a computer scan sheet or card to record your answers to the following Pretest. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 1-10 to record the answers to the Pretest. If your answers will be hand-scored, use a blank sheet of paper to record your answers and number your answers 1-10.

Get Pretest Questions from your instructor.

When you finish the Pretest, return the test form and the computer scan card or notebook paper to your instructor.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

ASSIGNMENTS TO TURN IN

At the end of 8 days, you will have given the following items to your instructor for evaluation:

1. **Computer score card/sheet, with answers to:**
   - a) Pretest
   - b) Study Questions from Day 3
   - b) Study Questions from Day 5
   - d) Study Questions from Day 6
   - c) Posttest

2. **Answers to Activity Questions**
   - a) Day 2 Activity Report
   - b) Day 4 Activity Report
   - c) Day 5 Activity Report
   - d) Day 7 Activity Report
   - b) Objective 2 exercise on components of the head

3. **Health Occupations Essay**

4. **Career Search Activity**
   - a) Two occupations identified
   - b) Explanation of why those occupations appealed to you

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

GOAL

The Health Occupations TLA will help you learn about medical professions, particularly health occupations, hospital procedures, and surgical procedures.

Though this TLA uses a computer program, its ultimate goal is not to teach you how to use the program. Instead, it allows you to learn about the medical profession through using this program.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

WORDS YOU SHOULD KNOW

Aneurysm — Enlargement in artery caused by a weak arterial wall.

Burr hole — A hole in the skull made by a drill.

Dura mater — A tough fibrous membrane that covers the brain and the spinal cord.

Infarction — Blockage of blood vessels outside the vessel walls.

Migraines — Severe headaches caused by dilated blood vessels in the brain.

Neurology — The study of the nervous system and its disorders.

Neuropathy — Inflammation of the peripheral nerves connecting the central nervous system to the extremities.

Radiology — The use of radiation for medical diagnosis, such as the use of X rays.

Reflex — An involuntary action or response.

Sensory — Transmitting impulses from sense organs to nerve centers.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1 ACTIVITIES

WORDS YOU SHOULD KNOW

Subdural hematoma — Bleeding that causes blood to clot beneath the membranes that cover the brain.

Suture — The process of joining two skin edges together or the material used in this procedure

Tumor — Abnormal formation of tissue

X ray — A high-energy particle used for its penetrating power in radiology.
Note: "X ray" is a noun; "x-ray" is an adjective.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1 ACTIVITIES

EXPECTED LEARNER OUTCOMES

- You will know and appreciate the importance of technology and technological literacy.
- You will explore career opportunities so you can make meaningful career choices.
- You will explore future educational opportunities so you can make meaningful educational choices.
- You will apply problem-solving and critical thinking techniques.
- You will apply math, science, reading, and other school subjects in a practical situation.
- You will develop basic skills in the safe and proper use of tools, machines, materials, processes, and technical concepts.
- You will recognize and develop individual talents.
- You will think logically and sequentially.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1 ACTIVITIES

EXPECTED LEARNER OUTCOMES

- You will develop leadership, creative abilities, positive self-concepts, and individual potential in a technological society.
- You will adjust to a changing technological environment.
- You will develop an understanding and the ability to adapt to those technological forces that influence life in the 21st Century.
- You will communicate by making clear and relevant points through the development of mental process skills.
- You will apply design, imagination, and creative abilities.
- You will learn applications of lifelong skills.
- You will think globally and act locally.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

OBJECTIVES

At the completion of this Technology Learning Activity you should be able to:

1. Access the instructional menu in the program to obtain information on general diagnostic procedures and surgical guidelines.

2. Correctly identify the components of the head.

3. Distinguish among different neurological diseases, their causes, symptoms, and treatments and to answer the test questions that follow.

4. Use the program to perform a physical examination of a patient.

5. Select an operating team to perform an operation so that the team members can cooperate with each other to perform a successful operation.

6. Identify common surgical tools and their functions, and answer questions about their use.

7. Read about basic operating procedures and answer questions based on what you read.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

OBJECTIVES

8. Form an opinion as to whether or not you would enjoy working in a health occupation and, using correct grammar and spelling, explain your decision in a 1-page essay.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

The following TSA Competitive Events apply to your study of health occupations:

- Technical Report Writing
- Research Paper
- Health Career Poster

See *TSA Competitive Events Guidelines* for specific details on the competitions.

Related TSA Competitive Events

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1
ACTIVITIES

The symbols in the right column are used to identify the Academic and Workplace Applications that are reinforced by specific activities in the TLA.

ACADEMIC AND WORKPLACE APPLICATIONS

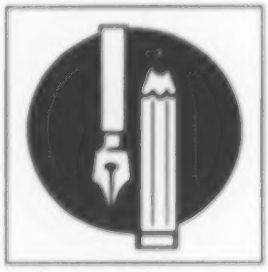
Reading Skills Applied:

Reading Comprehension Skills:

- Gain factual information
- Distinguish fact, opinion & inference
- Analyze cause and effect
- Draw conclusions
- Make generalizations
- React to written material

Functional Reading Skills

- Follow written instructions
- Interpret graphics & symbols
- Interpret acronyms



Writing Skills Applied:

Language Skills:

- Use standard grammar
- Use correct spelling
- Use correct punctuation
- Use correct capitalization

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 1 ACTIVITIES

ACADEMIC AND WORKPLACE APPLICATIONS

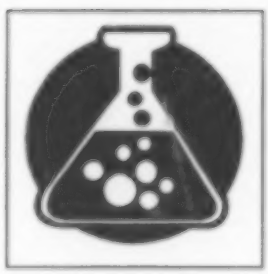
Composition Skills
- Use complete sentences
- Use topic sentences
- Use introductory and closing paragraphs
- Proofread and edit

Research Skills
- Take notes

Science Concepts Applied:

General Science Skills:
- Apply scientific method of inquiry

Life Science Skills
- Investigate and apply principles of anatomy
- Investigate health issues



If you complete Day 1 Activities with time left over, you may begin Day 2 Activities.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

On Day 2 you should complete the following objectives:

1. Read Information Sheets
2. Complete Activity Report

DAY 2 ACTIVITIES

SUMMARY OF ACTIVITIES

Functional Reading Skills
- Follow written instructions
- Use content area vocabulary

Language Skills:
- Use standard grammar
- Use correct spelling
- Use correct punctuation

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

INFORMATION SHEET

In this Health Occupations TLA, you will learn about medical professions, particularly health occupations, hospital procedures, and health practices.

This unit uses the computer program *Life & Death II: The Brain.* You should note that the program reinforces the learning of the information given in this TLA and gives you some "hands-on" experience in the medical profession.

Life & Death II: The Brain, as its name suggests, focuses on brain surgeries. Besides learning hospital procedure, you will learn about neurological diseases and their diagnoses, as well as neurological surgeries to treat these diseases.

Through using this program, you will have an idea about health occupations and see if you are interested in any of these professions.

This information section helps you become familiar with the program, *Life & Death II: The Brain*, which will be referred to as the Brain program.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

TOOLS AND MATERIALS

- Computer program
- 2 sheets of notebook paper
- #2 Pencil

PROCEDURE

FOLLOW THESE STEPS:

Getting started

Now let's start learning about the program. Assuming you are at the C prompt (your computer screen shows C:\>) and the Brain program is loaded in the directory LD2, follow the procedure below to start the program.

STEP 1: At C:\>, type CD LD2 and press the ENTER key. You will then see a new prompt as follows:

C:\LD2>

STEP 2: At the above new prompt, type LD2 and press the ENTER key to start the program.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

FOLLOW THESE STEPS:

You should see a display of changing colors of a bottle with a brain inside, accompanied by music. Next, you should see a clipboard on the screen. If all this occurs, you are ready to begin the sign-in procedure described on the next page.

NOTICE

Ask your instructor for help if you have difficulty starting the program.

When you arrive at the hospital, you will be presented a sign-in sheet. This procedure is important in real hospitals as well as the program because the nurse has to keep track of the doctors on duty. In case a patient needs medical attention, the nurse can contact the patient's doctor.

If you are playing *Life and Death II* for the first time:

To sign in, type in your name on a blank line and then press the ENTER key.

If you have visited the hospital before, you will see your name on the sign-in sheet.

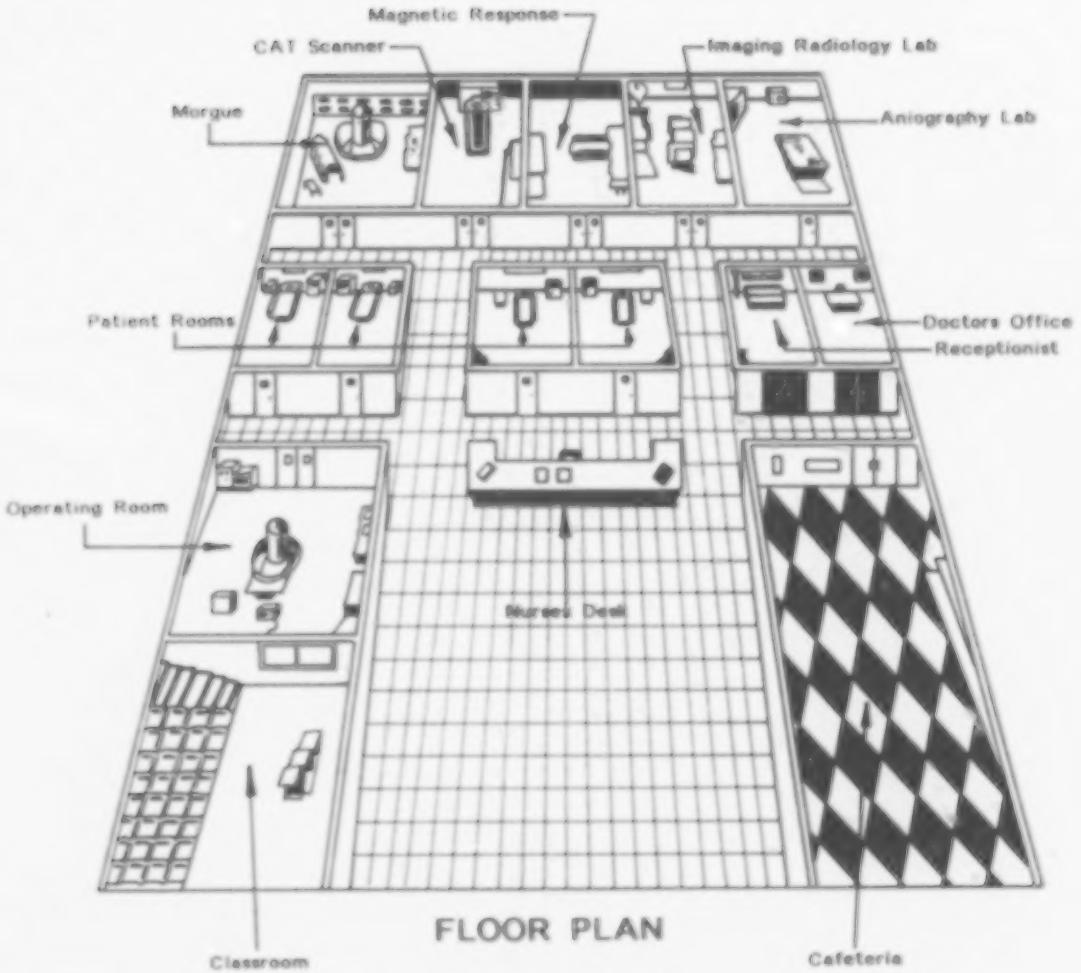
To begin the program where you left off, click on your name.

You will then see the floor plan of the hospital you are in. A labeled layout of the hospital floor plan appears on the next page.

Signing in

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2
ACTIVITIES



FLOOR PLAN

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

Orientation

After you sign in, you will then see a message on the screen requesting you to report to the classroom. In the classroom, you will have a brief orientation on how to play this computer program. To attend the orientation, follow the procedure below.

PROCEDURE

FOLLOW THESE STEPS:

STEP 1: To go to the classroom, use the mouse to move the cursor to the room at the left bottom corner of the screen and click.

Now you have entered the classroom.

STEP 2: Read the lesson on the board carefully.

STEP 3: After you are finished with the lesson, move the cursor to the door and click.

IMPORTANT

You will see a message on the screen directing you to a patient room. Ignore this message and continue Day 2 Activities on the following pages.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

You may be interested in the CAT scanner room, the MRI room, the radiology lab, the angiography lab, the cafeteria for gossip about the hospital staff, or the morgue to find out which surgeon has killed the most patients.

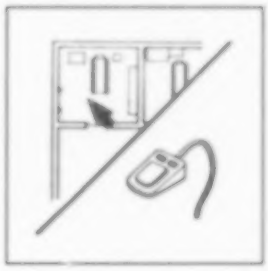
Refer to the labeled floor plan on page 19 to locate the rooms.

It is very important for a doctor to know about the medical facilities available in the hospital because he or she may need them to diagnose his or her patients.

Explore all the rooms of the hospital. You may want to start from the top right or left corner to keep track of the rooms you have visited.

PROCEDURE
Exploring the Hospital

FOLLOW THESE STEPS:



STEP 1: Click on any room you want to explore.

Now you are inside the room you have clicked on.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

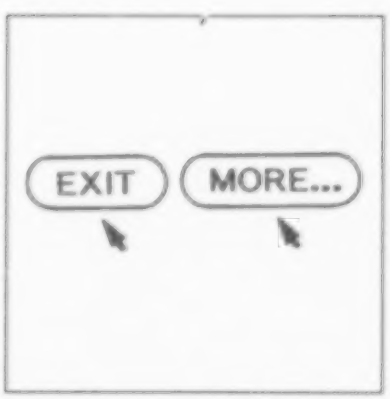
FOLLOW THESE STEPS:

STEP 2: Read the information about the room in the box on the screen, if you have such a box.

(If you do not have such a box, just click on any object to see what it is.)

Pay particular attention to the medical facilities, such as the CAT scanner and the MRI scanner, as well as their functions. (You will need the information to answer the question that follows.)

STEP 3: In some rooms you will see two buttons (EXIT and MORE...) at the top left corner of the screen. Click the MORE... button at the top left corner for more information. Click the EXIT button when you are finished exploring the room.

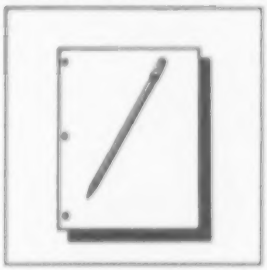


STEP 4: Repeat Steps 1, 2, and 3 to explore all the other rooms.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 2 ACTIVITIES

ACTIVITY REPORT



On a blank sheet of notebook paper, briefly describe the functions of the following medical facilities:

a) The CAT scanner
b) The Magnetic Resonance Imaging (MRI) scanner
c) The radiology lab
d) The angiography lab

Write your name, class period, TLA, and date on your paper. Give the paper to your instructor when you finish.

If you complete Day 2 Activities with time left over, you may practice how to use *Life and Death II* for the remainder of the period.

IMPORTANT

At the end of the period, exit the program by moving the cursor to the lower left corner of the hospital floor plan and click the left mouse button. A message will appear on the screen. Double-click (click the mouse two times quickly) on "Yes, I'm leaving." Turn off the computer.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

On Day 3 you should complete the following activities:

1. Complete Objective 1
2. Complete Objective 2
3. Complete Objective 3

SUMMARY OF ACTIVITIES

Reading Comprehension skills:
- Gain factual information
- Distinguish fact, opinion & inference
- Analyze cause and effect
- Draw conclusions
- Make generalizations

Functional Reading Skills
- Follow written instructions
- Interpret graphics & symbols
- Interpret abbreviations/ acronyms

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

OBJECTIVE 1

Access the instructional menu in the program to obtain information on general diagnostic procedures and surgical guidelines.

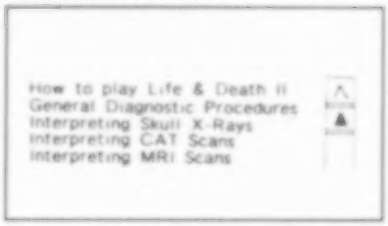
TOOLS AND MATERIALS

- Computer program
- 1 sheet of notebook paper
- #2 Pencil

Introduction

The game has a detailed instructional menu, which can answer questions on general diagnostic procedures and surgical instructions.

Doctors often consult medical references when they want to make sure their diagnoses are accurate or when they are doubtful about unusual symptoms of a disease. This menu also serves as a quick reference for you when you have questions about a medical procedure.



TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

IMPORTANT

You may access this menu any time except when you are performing an operation. You need to be fully prepared before you enter the operating room.

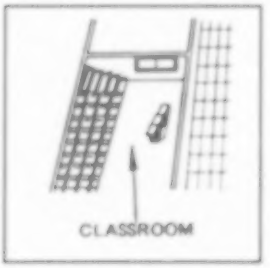
The following procedure accesses the instructional menu.

PROCEDURE

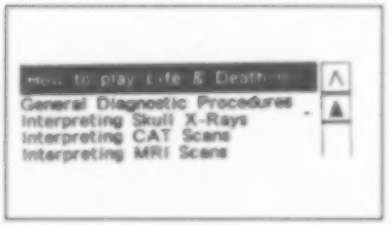
FOLLOW THESE STEPS:

STEP 1: Start the game the same way you did on Day 2.

STEP 2: Go to the classroom.



STEP 3: Double-click the mouse (click the mouse two times quickly) on the first item on the menu, "How to Play Life and Death II."



TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

FOLLOW THESE STEPS:

STEP 4: Read this lecture carefully. This lecture tells you how to use this menu. Click on the lecture to explore other topics you are interested in.

STEP 5: When you are finished exploring other topics, click on the door to exit.

You will study this menu in detail later. What you need to know at the moment is how to access it.

Continue Day 3 Activities by completing Objective 2.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3
ACTIVITIES

OBJECTIVE 2

Correctly identify the components of the head.

INTRODUCTION

In this TLA you will learn about neurology, which is the study of the nervous system and its disorders. Neurological diseases include aneurysms, brain tumors, infarctions, and migraines.

In order to better understand neurological diseases, you should be familiar with the structure and components of the head. Many neurological diseases involve brain surgeries.

You may access information about the brain in a neurological book in the game. The following procedure shows you how to locate such information.

PROCEDURE

FOLLOW THESE STEPS:

STEP 1: Follow the Getting Started procedure and the Signing In procedure you learned on Day 2 to access the hospital floor plan.

A box will appear on the screen telling you the room in which a patient is waiting for you.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

The patient's rooms are located behind the reception desk (in the middle of the screen). Room 1 is the first room from the left of the screen; Room 2 is the second room from the left of the screen and so on.

STEP 2: Click on the room where a patient is waiting for you.

You should see a patient lying in bed.

STEP 3: Click on the clipboard hanging above the patient's bed.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

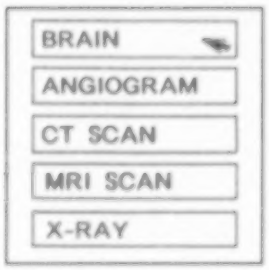
FOLLOW THESE STEPS:

You will see a neurological book at the right bottom of the screen.

STEP 4: Click on the book.

You will see a list of neurological terms on the right side of the screen. The first subject on the list is "BRAIN."

STEP 5: Click on the BRAIN tab and study it carefully and then answer the questions on the next page. You may use the neurological book to help answer the questions.



STEP 6: When you finish answering the questions, move the cursor to the top of the screen and click the left mouse button.

You will see the clipboard information appear on the screen.

STEP 7: Move the cursor to the hole in the top of the clipboard and click the left mouse button to get back to the patient.

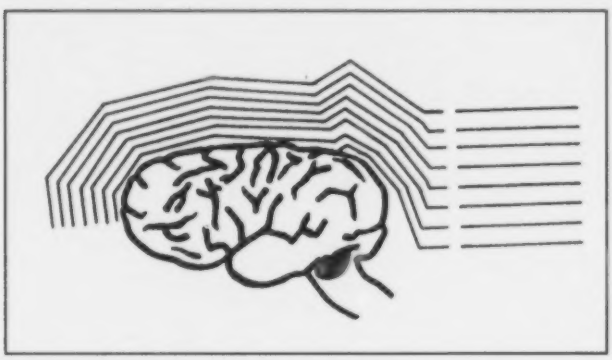
STEP 8: Click on EXIT to exit the patient's room.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3 ACTIVITIES

INSTRUCTIONS

Identify the components of the head. Ask your instructor for a copy of the diagram shown below. In the blanks provided, write the correct answers corresponding to the components.



Give the diagram with the blanks filled in to your instructor.

Continue Day 3 Activities by completing Objective 3.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3
ACTIVITIES

OBJECTIVE 3

Distinguish among different neurological diseases, their causes, symptoms, and treatments and answer the test questions that follow.

INTRODUCTION

A doctor should be able to tell the differences among common neurological diseases because each disease requires a specific diagnosis and treatment.

Some diseases, such as infarction and aneurysms, have similar symptoms. To avoid misdiagnosis a doctor has to thoroughly and carefully examine a patient before deciding on a course of treatment.

The charts on the following page show you the causes, symptoms, and treatments of some neurological diseases.

Study the charts carefully and answer the questions that follow.

The questions test your ability to distinguish among different neurological diseases and consequently help you play the game successfully.

NEUROLOGICAL DISEASES

Disease	Cause	Symptoms	Treatment
Aneurysm	Enlargement of an artery caused by a weak spot in the wall of the artery.	• Severe headache • Unconsciousness • Weakness of the arms and legs • Abnormal pupil dilation • Paralysis of eye movement	• Administer angiography rather than X rays • Administer the CAT scan or MRI scan • Perform a surgery after confirmation
Brain tumor	Abnormal formation of tissue	• Headache • Weakness in the arms and legs • Aggravated reflexes • Sensation loss on the opposite side from the tumor • Impaired speech if the tumor is on the left side of the brain	• Administer a CAT scan or MRI scan to see the abnormality • Administer angiography to see an invisible mass compressing the blood vessels (Skull X ray is unnecessary) • Operate to open the skull and remove the tumor
Infarction (Stroke)	Blocked or leakage of blood outside vessel walls	• Weaknesses and loss of sensation • Abnormal pupil dilation and light reaction • Lack of eye movement on the opposite side • Slurred speech if infarction on the left side of the brain • Aggravated reflexes	• Administer CAT and MRI scans to show a damaged area in the brain • Administer angiography to show the blocked blood vessel • Restore impairments through physical therapy, speech therapy and exercise
Migraine	Severe headaches caused by the dilation or spasms of blood vessels in the brain	• Weakness of the arm and leg on one side • Aggravated reflexes • Impaired speech	• Do not need special tests • Prescribe a powerful drug such as codeine in severe cases

NEUROLOGICAL DISEASES

Disease	Cause	Symptoms	Treatment
Subdural hematoma	Increased blood volume between the dura mater and the brain as a result of torn veins inside the dura mater	• Headaches • Confusion • One-sided weakness on the same side as injury • Abnormal pupil dilation and light reaction • Slurred speech if the hematoma is on the left side	• Administer CAT and MRI scans to show abnormal blood clotting and indentation of the skull • Administer an angiography to show invisible displacement of the blood vessels by the clotting • Administer X ray to show skull fractures • Perform an operation to drain blood clots and repair vessels
Hysteria	High anxiety	• Weakness in the arms and legs • Facial and sensory defects	• Do not need major tests, such as CAT and MRI scans and X ray, if no significant symptoms are found during the physical test. • Refer the patient to a psychiatrist
Neuropathy	Inflammation of the peripheral nerves connecting the central nervous system to the extremities	• Weakness or lack of sensation in one of the limbs	• Conduct a complete physical examination • Do not need tests such as CAT and MRI scans, X-ray, angiogram • Have the patient exercise the affected extremities
Drug addiction	Abuse of drugs, such as cocaine and morphine	• Dilated pupils in patients suffering from cocaine overdose • Narrowed, non-reacting pupils in patients suffering from morphine addiction	• Help patients overcome physical and psychological dependencies • Refer patients to a qualified psychiatrist

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3
ACTIVITIES

NEUROLOGICAL DISEASES

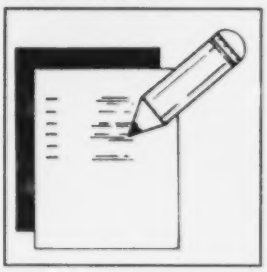
Disease	Cause	Symptoms	Treatment
Headaches	Food types, poor diet, Brain tumors or aneurysms	• Pain all over the head	• Prescribe aspirin

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 3
ACTIVITIES

STUDY QUESTIONS

INSTRUCTIONS



You will need a computer scan sheet or card to record your answers to the following test. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 11-20 to record the answers to the test. If your answers will be hand-scored, use a blank sheet of notebook paper to record your answers and number your answers 11-20.

11. What disease is caused by the enlargement of the artery?

    a) Aneurysm
    b) Brain tumor
    c) Subdural hematoma
    d) Infarction

12. What disease is caused by abnormal formation of tissue?

    a) Aneurysm
    b) Brain tumor
    c) Subdural hematoma
    d) Infarction

13. Which one of the following diseases does NOT require surgery?

    a) Aneurysm
    b) Brain tumor
    c) Subdural hematoma
    d) Infarction

— continued —

STUDY QUESTIONS

14. If a patient suffers from slurred speech, which one of the following diseases may he or she have?

    a) Aneurysm
    b) Brain tumor
    c) Hysteria
    d) Neuropathy

15. Which one of the following diseases may be treated with codeine?

    a) Aneurysm
    b) Migraines
    c) Hysteria
    d) Infarction

16. Another name for infarction is
    a) Migraines
    b) Aneurysm
    c) Stroke
    d) Hysteria

17. Damage to the left side of the brain may impair speech.

    a) True
    b) False

18. Which one of the following diseases requires treatment by a psychiatrist?

    a) Aneurysm
    b) Migraines
    c) Hysteria
    d) Infarction

— continued —

STUDY QUESTIONS

19. Administering a CAT scan is appropriate for the following diseases except

    a) Subdural hematoma
    b) Brain tumor
    c) Neuropathy
    d) Infarction

20. Brain tumors are caused by
    a) High anxiety
    b) Blocked blood vessels
    c) Severe headaches
    d) Abnormal formation of tissue

If you finish Day 3 Activities with time left over, you may play *Life and Death II* for the remainder of the class period.

At the end of the period, exit the program and turn off the computer.

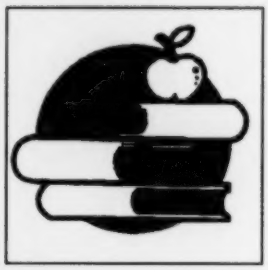
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

On Day 4 you should complete the following activities:

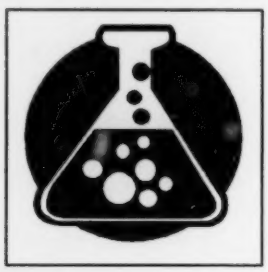
❶ Complete Objective 4

SUMMARY OF ACTIVITIES



Reading Comprehension skills:
- Gain factual information
- Distinguish fact, opinion & inference
- Analyze cause and effect
- Draw conclusions

Functional Reading Skills
- Follow written instructions
- Interpret graphics & symbols



Life Science Skills
- Investigate health issues

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

OBJECTIVE 4

Use the game to perform a physical examination of a patient.

TOOLS AND MATERIALS

- Computer program
- 1 sheet of notebook paper
- #2 Pencil

INTRODUCTION

Before determining the proper course of treatment, you will have to conduct a physical examination. Such an examination provides you with clues about the patient's condition and cautions you about possible pitfalls in the examination and treatment process.

You need to conduct a physical examination thoroughly and carefully in order to prevent any misdiagnosis.

You will learn how to determine the patient's reported symptoms and then perform a physical examination in *Life and Death II*. The result of the examination helps you determine any appropriate further treatment.

The following procedure instructs you how to determine the patient's reported symptoms.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

PROCEDURE

FOLLOW THESE STEPS:

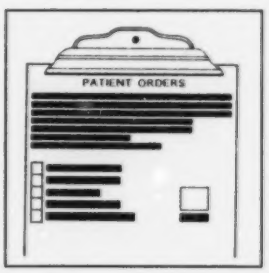
Go to your assigned patient's room, where you will see the patient lying in bed.

If you do not know how to go to the patient's room, follow the procedure in Objective 2 you learned the previous day.

STEP 1: Click on the clipboard on the wall.

You will see the patient's symptoms on the screen. Study them carefully.

STEP 2: After you have studied the patient's symptoms, click on the upper left corner of the screen to go back to the patient's room.



You will then perform a series of neurological examinations by checking the following body parts of the patient:

- eyes
- face
- arms
- legs

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

The following procedure shows how to examine the patient's sensory responses.

Physical Examination of Sensory Responses

FOLLOW THESE STEPS:

PROCEDURE

STEP 1: Click on the patient's face.

You will see a closeup of the patient's eyes.

STEP 2: Grab the pointer in the upper left of the tray by clicking on it when the fingertips touch it.

STEP 3: Hold the mouse button down as you move the pointer around the patient's eyes.

Observe the patient's eye movement for any abnormalities.

STEP 4: After you are finished, move the pointer back to the tray and click the mouse.

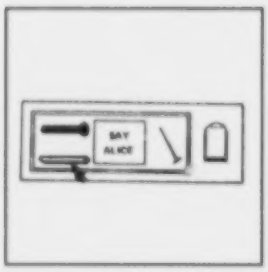
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4
ACTIVITIES

FOLLOW THESE STEPS:

Now, you will use the penlight (just below the pointer) to check the patient's pupils.

STEP 5: Grab the penlight by clicking on it.



STEP 6: Move the penlight near the patient's eyes.

STEP 7: Click the penlight to check pupils for light reactions and any abnormal pupil dilation (expansion).

STEP 8: After you are finished, move the penlight back to the tray and click the mouse.

FOLLOW THESE STEPS:

Now you are going to test the patient's speech.

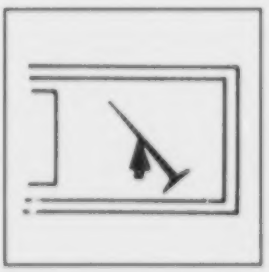
STEP 9: Grab the "Say Alice" card and click it on the patient face.

Listen to the patient's responses. Pay attention to any slurred speech.

STEP 10: After you are finished, move the card back to the tray and click the mouse.

After finishing the eye examination, you will test the patient's sensory responses.

STEP 11: Click on the pin from the tray.



FOLLOW THESE STEPS:

STEP 12: Move the pin to both sides of the patient's face and click.

Listen to the patient's response. If the patient is in pain when you click, the patient's sensory responses are normal.

If the patient does not respond at all, then sensory responses are not normal.

STEP 13: After you are finished, place the pin back on the tray and click.

STEP 14: Click on the upper left corner of the screen to go back to the patient's room.

You will again see the patient lying in bed and you will be ready to conduct the next test.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

Physical Examination of Arms

After finishing the sensory test, you will examine the patient's arms. The purpose is to check the patient's strength.

FOLLOW THESE STEPS:

STEP 1: Click on the patient's right or left arm.

The screen will show the patient's two arms. Now you are ready to examine the patient's strength by seeing how his or her arms react to your tests.

STEP 2: Lift the patient's left arm by clicking and dragging the mouse upward.

STEP 3: Release the mouse button to see how the patient's arm falls.

The patient's arm will fall quickly when it shows weaknesses.

STEP 4: Repeat Step 2 and Step 3 for the right arm.

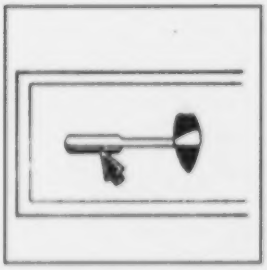
After testing the patient's arm strength, you will examine the patient's reflexes.

PROCEDURE

DAY 4
ACTIVITIES

FOLLOW THESE STEPS:

Step 5: Pick up the hammer on the tray by clicking on it.



Step 6: Use the hammer to tap both the patient's elbows.

You will hear a sound if you tap the right area.

Observe any absent or sudden responses.

STEP 7: After you are finished with this test, place the hammer back to the tray and click.

You will perform another test on sensory responses.

STEP 8: Take the pin to test sensory responses in both arms.

This sensory test is similar to the sensory test you did on the face a moment ago.

After testing the patient's arms, examine the reflexes of the patient's legs.

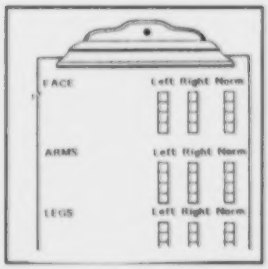
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

The leg examination is similar to the arm examination you just did. Try it yourself. If you have any problem performing the leg examination, ask your instructor for help.

After you have finished the last physical examination, click the clipboard at the bottom right corner of the screen. You will see the overall results of the examination. Use these results to complete the Activity Report on the next page.

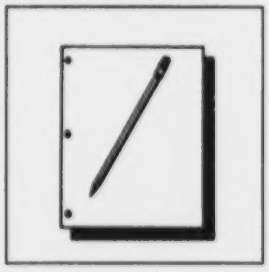
Physical Examination of Legs



TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 4 ACTIVITIES

ACTIVITY REPORT



On a sheet of notebook paper, write a paragraph explaining the importance of the patient's chart and physical examination. Be sure to use correct grammar and spelling. Remember to write your name, the date, the title of the TLA, and the class at the top of the sheet.

After the physical examination, check its results against the charts you studied on Day 3 about symptoms and diagnoses of neurological diseases.

The charts will help you determine what further test or tests, such as a CAT scan or an MRI scan, the patient needs.

If you finish Day 4 Activities with time left over, you may play *Life and Death II* for the remainder of the class period.

At the end of the period, exit the program and turn off the computer.

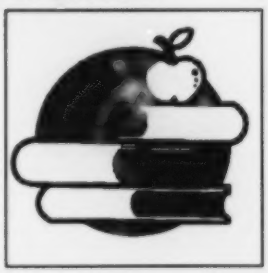
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

On Day 5 you should complete the following activities:

1. Complete Objective 5
2. Complete Objective 6

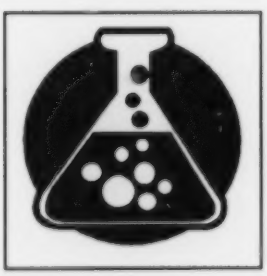
DAY 5 ACTIVITIES

SUMMARY OF ACTIVITIES



Reading Comprehension skills:
- Gain factual information
- Distinguish fact, opinion & inference
- Analyze cause and effect
- Draw conclusions
- Make generalizations

Functional Reading Skills
- Follow written instructions
- Interpret graphics & symbols
- Interpret abbreviations/ acronyms



Life Science Skills
- Investigate health issues

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

OBJECTIVE 5

Select an operating team so that the team members can cooperate with each other to perform a successful operation.

TOOLS AND MATERIALS

- Computer program
- Computer scan card/sheet or 1 sheet of notebook paper
- 1 sheet of notebook paper
- #2 Pencil

INTRODUCTION

A successful operation requires not only the doctor's expertise but also the cooperation of his or her team members. If the team members do not get along well or do not like each other, the lack of teamwork can negatively affect the outcome of the surgery.

Assuming your screen shows the map of the hospital (clicking on the exit sign will bring you back to the hospital map), click on the room which is behind the cafeteria all the way to the right. In this room, you can find the profiles of the medical practitioners available in this hospital.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

To select two staff members to form an operating team, follow the procedure below.

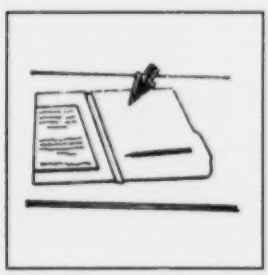
FOLLOW THESE STEPS:

PROCEDURE

STEP 1: Click on the swivel chair in front of the desk.

You will see an open yellow folder with a pen on it.

STEP 2: Click on the yellow folder.



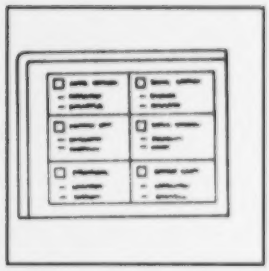
You will see on the screen six boxes, each of which describes a medical staff member in the hospital.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

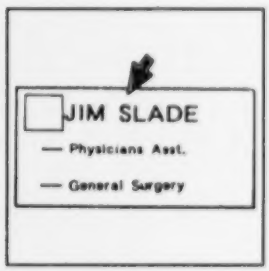
FOLLOW THESE STEPS:

STEP 3: Read all the boxes that appear on the screen.



You will find each staff member's position and specialization. To most benefit a patient, you should choose a staff member who is specialized in treating the particular disease that ails the patient.

STEP 4: For detailed information on a staff member, click near the staff member's name (not in the box)



You will see the staff member's photo and profile, as well as the technical and personal information of the staff member.

The technical information indicates the staff member's specialization.

The personal information tells whether he or she can get along with other staff members. Good teamwork is essential to the success of an operation.

STEP 5: Click on the upper left corner of the screen to exit an employee's file.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

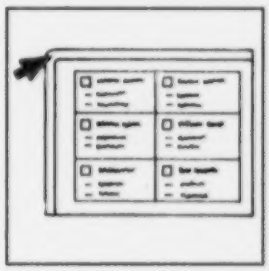
DAY 5 ACTIVITIES

FOLLOW THESE STEPS:

You should read ALL six staff member profiles before deciding on choosing any one of them. Pay particular attention to their specialization and attitude towards other staff members.

STEP 6: After reading all the profiles of the staff members, choose TWO members most suitable for the operation you have decided on. Click the mouse to put a check mark in the box next to the name to choose a staff member.

STEP 7: Click on the corner of the folder to close it, after you have chosen two staff members.



You will see the yellow folder again, along with a clipboard, a neurology book, and a computer.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

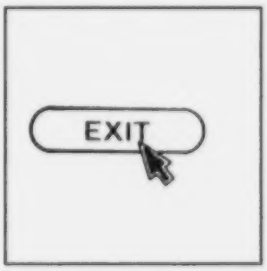
DAY 5 ACTIVITIES

FOLLOW THESE STEPS:

STEP 8: Click on the upper left corner of the screen of your computer (not the computer shown on the screen) to go back to the file office.

STEP 9: Click the exit sign at the top left corner.

You will see the map of the hospital.



TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

ACTIVITY REPORT

On a sheet of notebook paper, complete the following activity:

Imagine you have diagnosed a patient as suffering from a brain tumor. Use the above procedure to choose two staff members for the surgical team. After you choose your team, answer the question below.

> Describe why you chose the two staff members. Be sure to use correct grammar and spelling. Remember to write your name, the date, the title of the TLA, and the class at the top of the sheet.

When you finish with this Activity Report, give your answer to your instructor.

Continue Day 5 Activities by completing Objective 6.

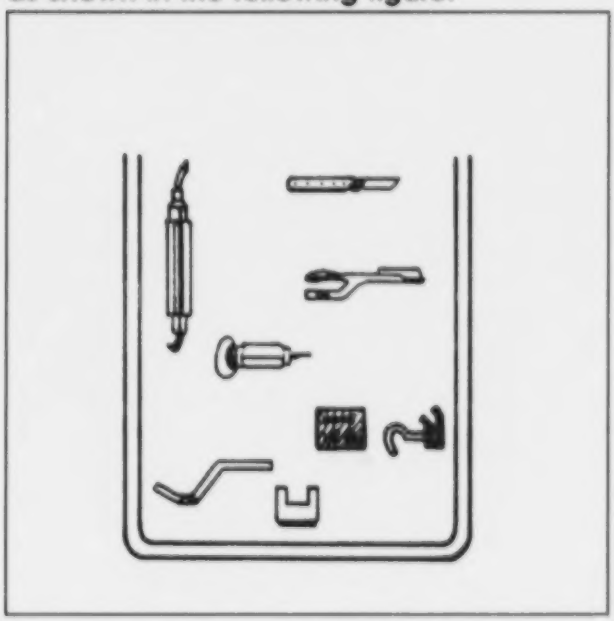
OBJECTIVE 6

Identify common neurosurgical tools, their functions, and answer questions about their use.

INTRODUCTION

A surgeon must be familiar with functions of the surgical tools he or she uses in order to perform a surgery successfully. Using a wrong tool will lead to the death of a patient.

In the operating room, you will see a tray of surgical tools at the bottom left corner as shown in the following figure:



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DAY 5 ACTIVITIES

You should note that you should not spend too much time learning how to use the tools while the patient is waiting for you to perform an operation. You need to study the tools on the previous page carefully before entering the operating room.

The following information shows you how to go to the operating room and helps you identify the functions of the tools you will use in an operation.

To enter the operating room, you should have a patient who needs an operation. To determine if a patient needs an operation, you need to perform a physical examination on the patient to determine if an operation is necessary.

You learned how to perform a physical examination during Day 4 activities.

Follow the procedure for performing a physical examination of a patient as stated in Objective 4.

Use the diagnostic information you learned in Objective 3 to determine if the patient needs an operation.

— continued —

If the patient needs an operation, the follow this procedure.

FOLLOW THESE STEPS:

STEP 1: Click on the clipboard on the wall of the patient's room.

STEP 2: Choose the "Prescribe Treatment" option on the clipboard.

You will see another clipboard showing a list of possibilities for further treatment.

STEP 3: Check the box which corresponds to the kind of operation you decide on for the patient according to the results of the physical examination.

STEP 4: Click on the initials box to place the medical order.

STEP 5: Click on the top left corner of the screen.

You will see a vacant patient room because the patient is being transferred to the operating room.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5
ACTIVITIES

FOLLOW THESE STEPS:

STEP 6: Click on the EXIT sign at the top left corner of the screen.

You will be in the operating room in a second.

You may identify the tools by clicking the RIGHT mouse button. The function of the tool you click on will show on the small message box at the bottom right corner of the screen.

Read the tools and descriptions on the following pages and use the figures in the right column to help you identify the tools when they appear in the *Life and Death II* game.

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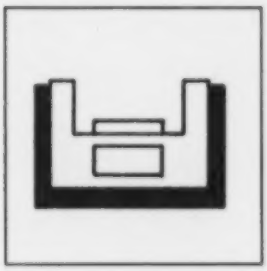
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

Clamp

A clamp is placed on the scalp flap as it is incised.

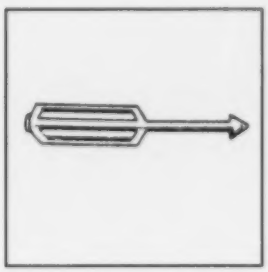


Electrocauterizer

An electrocauterizer is used to burn or scar tissues and thus coagulate bleeding blood vessels.

Dissector

A dissector is used in each burr hole to separate dura mater from the skull.



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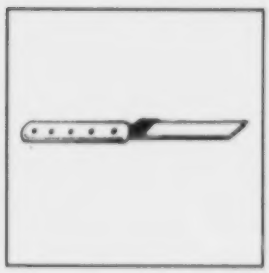
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

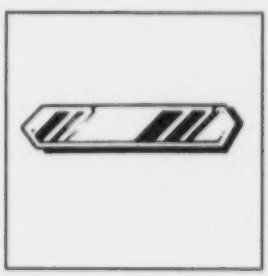
Scalpel

A scalpel is a pointed knife with a convex edge used for making an incision.



Metal ribbon

A metal ribbon is used to prevent suture drilling into the brain.



Fishhook

A fishhook is used to anchor the skull flap away from the skull.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

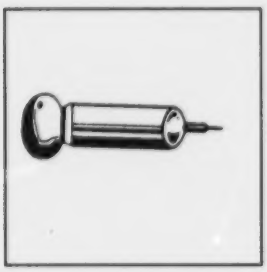
DAY 5
ACTIVITIES

Bone wax

Bone wax is used to stop small bleeders on the bone edges.

Irrigator

An irrigator is used to lubricate in order to prevent overheating when drilling the bone.



Trephine drill

A trephine drill is used to drill burr holes in the skull.

Three drill heads (a fine bit, a smoothing bit, and a bone saw bit) can be placed on the drill for different uses.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5
ACTIVITIES

Fine bit

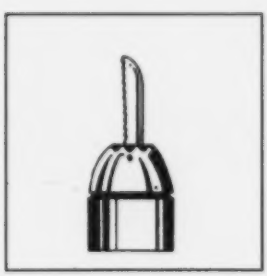
A fine bit is used to drill a suture hole in the skull.

Smoothing bit

A smoothing bit is used to smooth rough bone edges.

Bone saw bit

A bone sqw bit is used to saw between skull burr holes.



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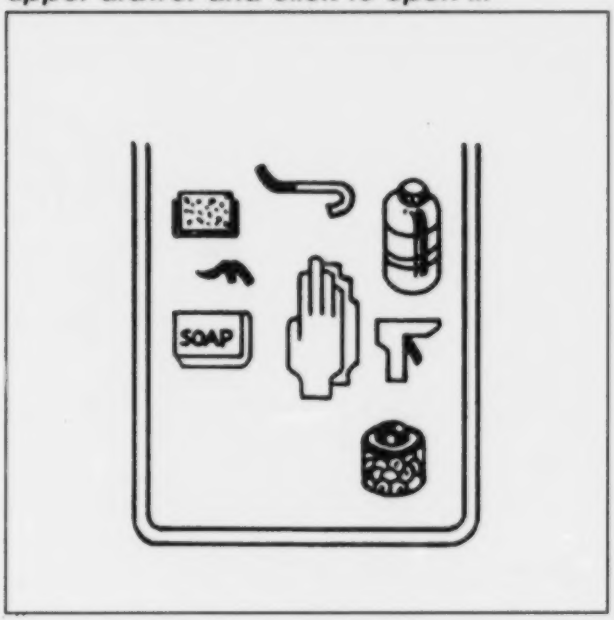
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5
ACTIVITIES

In addition to the above tools, the upper drawer just below the EKG machine has some more tools. Move the mouse to the upper drawer and click to open it.



Soap

Soap is used to disinfect your hands before operation.

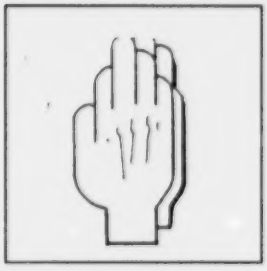
— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

Surgical gloves

Surgical gloves are worn to prevent infection.

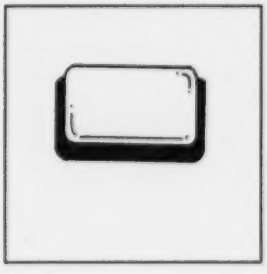


Drain

A drain is used after the suction removes the subdural hematoma.

Drape

Used to cover areas not involved in surgery to prevent infection.



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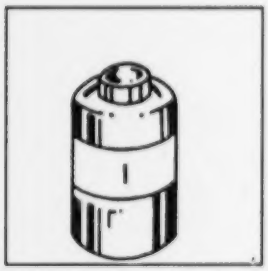
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

Antiseptic

Antiseptic is applied on the operation area to prevent infection.

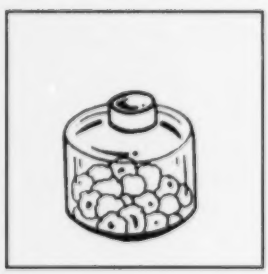


Staple gun

A staple gun is used to close the scalp incision at the end of an operation.

Cotton swabs

Cotton swabs are used to wipe blood from tissue.



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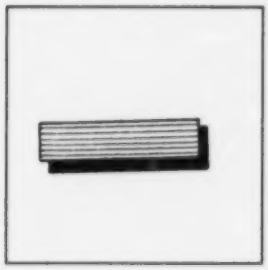
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

Gauge strips

A gauge strip is placed under the dura tissue flap to prevent drying.



Sutures

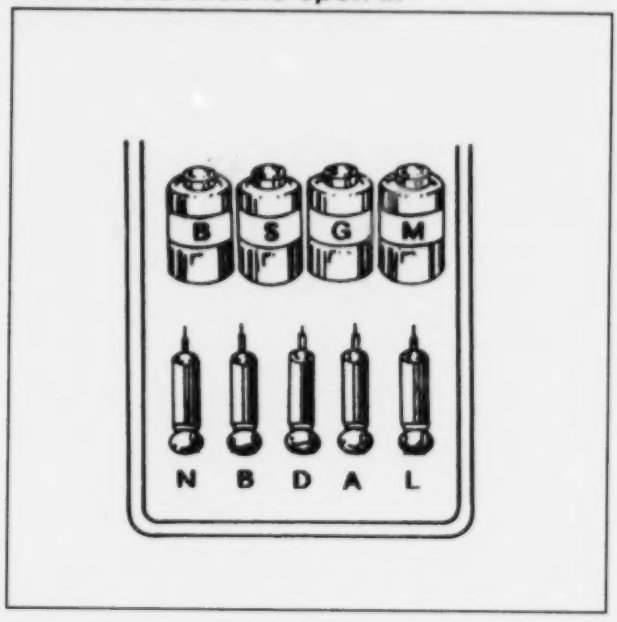
Sutures are used to close incisions or hold bone sections in place.

— continued —

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

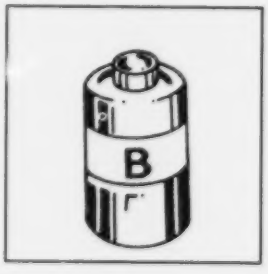
DAY 5
ACTIVITIES

In addition to the above tools, the lower drawer below the EKG machine has some more tools. Move the mouse to the lower drawer and click to open it.



Blood IV

Should be used when cutting tissue, helps hold blood pressure steady.



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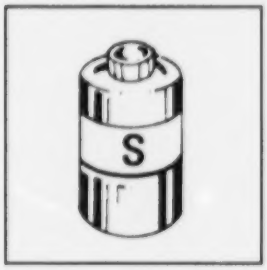
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

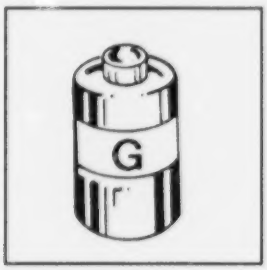
Saline IV

Saline solution drip, helps replace lost fluids during surgery.



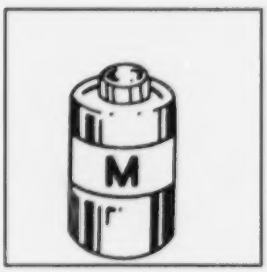
Glucose IV

Glucose drip, helps replace lost fluids and prevent shock during surgery.



Mannitol IV

Used in case of low urine output.



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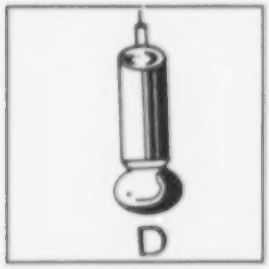
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5
ACTIVITIES

Nitroprusside
Induces hypotension during aneurysm and tumor operations.

Antibiotics
Used to fight infection.

Dopamine
Used in emergency to elevate blood pressure for a short time.



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TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5
ACTIVITIES

Atropine

Used in emergency in case of heart bradycardia.

Lidocaine

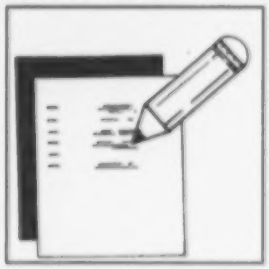
Used in emergency in case of heart PVC.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 5 ACTIVITIES

STUDY QUESTIONS

INSTRUCTIONS



You will need a computer scan sheet or card to record your answers to the following test. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 21-30 to record the answers to the test. If your answers will be hand-scored, use a blank sheet of notebook paper to record your answers and number your answers 21-30.

Match medical tools to their corresponding functions. Write the letter before the correct answer in the blank provided.

_____ 21. used to burn or scar tissues and thus coagulate bleeding blood vessels.

_____ 22. used in each burr hole to separate dura mater from the skull.

_____ 23. used for making an incision.

_____ 24. used to anchor the skull flap away from the skull.

_____ 25. used to stop small bleeders on the bone edges.

— continued —

a. Antiseptic

b. Bone wax

c. Dissector

d. Drape

e. Electrocauterizer

f. Fishhook

h. Irrigator

i. Scalpel

j. Staple gun

k. Suture

STUDY QUESTIONS

_____ 26. used to lubricate in order to prevent overheating when drilling the bone.

_____ 27. used to cover areas not involved in surgery to prevent infection.

_____ 28. applied on the operation area to prevent infection.

_____ 29. used to close the scalp incision at the end of an operation.

_____ 30. used to close incisions or hold bone sections in place.

a. Antiseptic

b. Bone wax

c. Dissector

d. Drape

e. Electorcauterizer

f. Fishhook

h. Irrigator

i. Scalpel

j. Staple gun

k. Suture

Turn your answer sheet in to your instructor.

If you finish Day 5 Activities with time left over, you may play *Life and Death II* for the remainder of the class period.

At the end of the period, exit the program and turn off the computer.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 6 ACTIVITIES

On Day 6 you should complete the following activities:

1. Read Information Sheet
2. Complete Objective 7

SUMMARY OF ACTIVITIES

Reading Comprehension Skills:
- Gain factual information

Research and Reference Skills:
- Locate resources
- Use on-line reference tools

Functional Reading Skills:
- Follow written instructions

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 6 ACTIVITIES

INFORMATION SHEET

Knowledge and experience have shaped the development of operating procedures. The importance of correct procedures cannot be overstated. After all, what patient would want to go into an operation and have the surgeon begin cutting before giving the patient anesthesia?

Knowledge is one tool for developing good procedures. Careful study of anatomy and blood flow have helped in the development of surgical procedures. Through anatomical study surgeons know where to cut and where not to cut to get to the injured part of the body without killing the patient. Study of blood flow showed that humans have a finite amount of blood and that during an operation the patient's lost blood needs to be replaced or the patient will die.

Experience has also led to good procedures, but often at the expense of patients' lives. Before infection was understood, sterile (clean and germ-free) operating rooms and tools were not used. Many patients died before someone figured out that a sterile environment was needed to prevent infection. It was not uncommon for people to die of broken

— continued —

legs or deep cuts into the body that would be quickly and easily treated today. This trial-and-error method of learning was costly in terms of lives, but it was also a necessary step toward today's surgical techniques and procedures.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 6 ACTIVITIES

OBJECTIVE 7

Read about basic operating procedures and answer questions based on what you read.

TOOLS AND MATERIALS

- Computer program
- Computer scan card/sheet or 1 sheet of notebook paper
- #2 Pencil

PROCEDURE

FOLLOW THESE STEPS:

STEP 1: Start *Life and Death II* as you have on previous days. Click on your name and go directly to the classroom.

STEP 2: Move the mouse cursor to the screen on the right and double-click on the line that reads OPERATIONAL HAZARDS. Read all the information that follows.

Remember to click on each screen you read until the menu reappears. Then continue with STEP 3.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 6 ACTIVITIES

FOLLOW THESE STEPS:

STEP 3: Repeat STEP 2 to read each of the following headings:

- ♦ OPENING THE SKULL
- ♦ INCISING/OPENING THE DURA MATER
- ♦ GENERAL CLOSING PROCEDURES

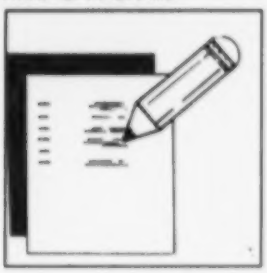
STEP 4: After you finish reading each of the headings above, answer the study questions on the next page. You may use the program to help answer the questions.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 6 ACTIVITIES

STUDY QUESTIONS

INSTRUCTIONS



You will need a computer scan sheet or card to record your answers to the following study questions. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 31-35 to record the answers to the study questions. If your answers will be hand-scored, use a blank sheet of notebook paper to record your answers and number your answers 31-35.

31. What happens to a patient if you inject Lidocaine or Atropine into a patient with a normal EKG?

    a. The patient shows an abnormal heart rhythm and you must inject the other drug to counteract the effect.
    b. The patient experiences ventricular fibrillation and requires more blood.
    c. The patient experiences ventricular fibrillation and dies.
    d. Nothing happpens.

— continued —

STUDY QUESTIONS

32. What should you do if a patient's blood pressure drops below 110/70 (the normal blood pressure for a patient)?

    a. Administer Lidocaine.
    b. Administer a blood transfusion.
    c. Administer mouth-to-mouth resuscitation.
    d. Administer adrenalin.

33. When incising and opening the scalp, what steps should you take to prevent post-operative infection?

    a. Wash hands and wear surgical gloves.
    b. Swab patient's scalp with iodine.
    c. Inject antibiotics.
    d. all of the above

34. Which of the following ailments requires that you open the skull during surgery?

    a. Hysteria
    b. Migraine
    c. Subdural hematoma
    d. Headache

— continued —

STUDY QUESTIONS

35. What happens to the brain if it is not irrigated every 5 minutes while the dura mater is open?

    a. It overheats and the patient dies.
    b. It becomes infected and the patient dies.
    c. It dries out and the patient dies.
    d. none of the above

Turn in your Study Question answers to your instructor. Use the remainder of the class period to play the game. If you go into surgery, use what you have read. You may go back to the classroom if you need help.

At the end of the period, exit the program and turn off the computer.

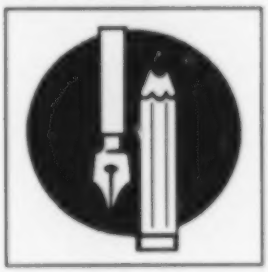
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 7 ACTIVITIES

On Day 7 you should complete the following activities:

1. Complete Objective 8

SUMMARY OF ACTIVITIES



Language Skills:
- Use standard grammar
- Use correct spelling
- Use correct punctuation
- Use correct capitalization

Composition Skills:
- Use complete sentences

Job Search/Selection Skills:
- Analyze personal occupations aptitudes/preferences
- Compare/evaluate career options

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 7 ACTIVITIES

INFORMATION SHEET

Entering any of the health occupations you have seen in *Life and Death II* takes a lot of time and commitment — both in reaching that profession and remaining a part of that professional community. To become a surgeon, you must complete an undergraduate college degree and then spend an average of 6-7 years in medical school. Nurses must go through intensive training before they are allowed to work with patients. For instance, licensed practical nurses (LPNs) can complete a one-year program, while registered nurses (RNs) must attend a college or university.

Once you become a doctor or a nurse, you spend much of your time at the hospital or in your private practice. There may be times when you are on-call — which means that you can be contacted by the hospital at any time (day or night) to come in and work if you are needed.

Or you might choose physical therapy as your profession. As a physical therapist, you organize and implement treatment programs for patients to help restore physical functions of their body after they have been disabled by disease or injury such as multiple sclerosis, cerebral palsy, and amputation.

— continued —

If all of this sounds rough . . . it is. But, there are also many rewards to health occupations. One obvious advantage is that these occupations pay very well. But another advantage is the intangible reward of helping other people. Saving somebody's life is a reward in itself because of the way it can make you feel. Still another advantage is that you meet an incredibly diverse set of people through your contact with co-workers and patients. This kind of contact can give you a breadth of knowledge few other occupations offer.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

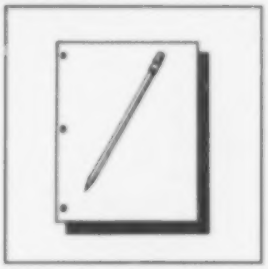
DAY 7 ACTIVITIES

OBJECTIVE 8

Given what you have learned about hospital procedures and health professions in this TLA, be able to form an opinion as to whether or not you would enjoy working in a health occupation and, using correct grammar and spelling, explain your decision in a 1-page essay.

TOOLS AND MATERIALS

- #2 pencil
- 1 sheet of notebook paper



PROCEDURE

FOLLOW THESE STEPS:

STEP 1: Think about what you have learned about health occupations from what you have read and from playing *Life and Death II.* Remember that there is a lot of work and responsibility involved in these professions, but also great rewards.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 7
ACTIVITIES

FOLLOW THESE STEPS:

STEP 2: Write a 1-page essay describing your thoughts about health occupations and say whether you would or would not like to enter one of these occupations.

NOTE: Write about your general impressions. On Day 8 you will have a chance to explore specific occupations.

Turn in your essay to your instructor. Use the remainder of the class period to play *Life and Death II.*

At the end of the period, exit the program and turn off the computer.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 8 ACTIVITIES

On Day 8 you should complete the following activities:

1. Read Impact Statements
2. Complete Career Search Activity
3. Complete any unfinished assignments
4. Complete Posttest
5. Turn in all assignments for the TLA

SUMMARY OF ACTIVITIES

Reading Comprehension Skills:
- Gain factual information

Functional Reading Skills:
- Follow written instructions
- Use content area vocabulary

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 8
ACTIVITIES

ENVIRONMENTAL IMPACT

Health practitioners play an important role in improving our environment and making it a better and safer place for us to live in. For instance, they find that air pollution and noise pollution adversely affect our health. Air pollution may cause lung cancer, while noise pollution may cause ailments such as headaches, nervousness, and irritability. Health practitioners help us handle environment-related ailments so that we can live harmoniously with the environment.

SOCIAL IMPACT

With the development of medical science, people can now better understand and communicate with one another. For instance, psychologists conduct research on how and why people react in a certain way under certain circumstances. When we understand more about human behaviors, we can promote communications so as to establish better relationships between people and hence form a better society.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 8
ACTIVITIES

ECONOMIC IMPACT

As medical technology continues to advance, many drugs are now available to the public without a doctor's prescription. We can buy over-the-counter drugs at a drug store at lower prices. Besides saving money, we can save time because we do not need to spend hours visiting a doctor when we know the sickness is minor, such as a cold or a headache.

Also, public health care has become available. People who cannot afford high medical bills can enjoy medical privileges that had once belonged to the rich.

In addition, when the people in a nation are healthy, the nation's economy will benefit from its people's health status because workers can put in more hours at work instead of asking for sick leave.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 8 ACTIVITIES

POLITICAL IMPACT

The advancement of medicine gives rise to many political issues such as Food and Drug Administration (FDA) testing and regulations for "safe" drugs.

The FDA is a government agency responsible for making sure drugs are safe before they are sold on the market. Many politicians believe the FDA takes too long to detemine the safety of drugs. That long period may keep useful drugs off the market and away from patients who might benefit from them.

Other politicians argue that it is necessary to take as much time as needed to test drugs. This keeps drugs with harmful side-effects off the market.

ERGONOMIC IMPACT

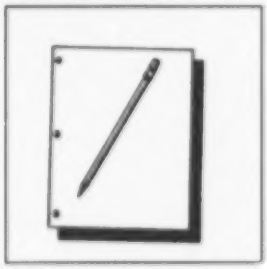
The health profession can help provide people with environments in which they can work effectively with machines. For instance, medical researchers have studied fatigue of workers, like computer operators, telephone operators, and assembly-line workers. Ways to improve the work environment, such as sufficient lighting and spacious office settings, can be implemented to lessen fatigue so that workers can perform their duties efficiently and effectively.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 8
ACTIVITIES

CAREER SEARCH ACTIVITY

INSTRUCTIONS



Using *Career Search Abstracts*, find the occupations listed below. Select the two occupations that sound most appealing to you. On a separate sheet of notebook paper, list the two occupations you selected and tell why. Remember to write using complete sentences, proper grammar, and correct spelling. Give the sheets to your instructor.

RELATED CAREERS

- Radiologic Technologist
- Licensed Practical Nurse
- Physical Therapist
- Physician
- Physician's Assistant

RADIOLOGIC TECHNOLOGIST

Nature of the Occupation

Radiologic technologists assist radiologists in the use of x-ray and fluoroscopic equipment in the diagnosis and treatment of disease or injury. They apply roentgen rays and radioactive substances to patients.

Duties may include but are not limited to the following:

- Arranging devices which lessen discomfort and prevent the patient from moving
- Positioning the patient for x- ray of the desired area
- Adjusting equipment to give a clear and undistorted view of the patient's body
- Determining proper voltage, current, and exposure time for each x-ray
- Preparing and administering mixtures which patients may be required to take
- Operating x-ray therapy machines to treat patients
- Keeping records and files of x-rays
- Cleaning and making minor adjustments to equipment
- Processing film

Occupation Specialties

(Dot codes in parenthesis)

Chief Radiologic Technologists (078. 52-010) coordinate activities of and supervise radiologic technologists engaged in taking radiographs and assisting in x-ray therapy.

Nuclear Medical Technologists (078.361-018) prepare, administer, and measure radioactive isotopes in therapeutic, diagnostic, and tracer studies, utilizing a variety of radioisotope equipment.

Radiation-Therapy Technologists (078.361-034) operate radiation therapy equipment to treat cancer and other patients with prescribed doses of ionizing radiation to specific body parts.

Working Conditions

Radiologic technologists usually work in modern, well-equipped rooms of hospitals, medical laboratories or doctors' offices in a rather quiet, orderly atmosphere. Protection from dangerous radiation is provided by leaded partitions, special protective clothing, and gloves.

Radiologic technologists usually work an 8-hour day and a 40-hour week, but may be called for weekend or emergency duty.

By passing the examination of the American Registry of Radiologic Technologists, technicians may join the American Society of Radiologic Technologists and its state-affiliated organization.

Tools, Equipment and Materials used may include:

- X-Ray Machine Units
- Fluoroscopes
- Electroscopes
- Scintillation & Positron Scanners
- Geiger Counters
- Sandbags
- Angleboards
- Cameras
- Film
- Scales
- Scintigrams
- Radium Emanation Tubes
- Protective Garments
- Binders

Worker Requirements

You should like:

- Working with things and objects
- Having direct personal contact with people
- Activities of a scientific or technical nature

You should be able to:

- See detail in drawings and recognize differences in shapes or shadings
- Rate information according to standards that can be measured or checked

Physically you must:

- Have good health and stamina
- Have good vision, either naturally or with correction

Special Requirements:

Radiologic technologists must have satisfactorily completed formal radiologic technology training in an American Medical Association (AMA) approved school in order to be registered by the American Registry of Radiologic Technologists (ARRT). Registration through the American Registry of Radiologic Technologists adds to a job applicant's credentials.

High school graduation or its equivalent is required for acceptance into a radiologic technologist training program. Applicants with one or two years of college may be preferred as are those with some nurse's training.

Opportunities for Experience:

Volunteer work in hospitals and with such organizations as the Red

OCCUPATION SPECIALTIES

DOT CODE:

078.362-026 Radiologic Technologist
078.162-010 Chief Radiologic Technologist
078.361-018 Nuclear Medical Technologist
078.361-034 Radiation-Therapy Technologist

SOC CODE: 365

OKLAHOMA CAREER SEARCH

RADIOLOGIC TECHNOLOGIST

Cross may serve to introduce the potential technician to the general area of health services. Experience is also available in the military.

Methods of Entry:

Radiologic technologists may enter this field by consulting placement services connected with training programs, newspaper want ads, or by applying directly to employers.

Earnings and Advancement

The salary of radiologic technologists may depend on such factors as length of employment, level of training, employer, and size of city.

Earnings:

Nationally, in 1990, radiologic technologists earned a starting salary of $20,006. Experienced radiologic technologists earned an average yearly salary of $26,683. Radiation therapy technologists salaries ranged between $23,553 and $30,283.

Radiologic technologists employed by the Federal Government earned approximately $23,902 in 1990. Radiation therapy technologists earned $26,208.

Fringe Benefits:

Students in radiologic training programs in hospitals may sometimes receive fringe benefits in the form of books and uniforms. Depending on the employer, the majority of radiologic technologists may receive hospitalization insurance, paid vacations, pension plans, uniforms, and sick leave. These benefits are usually paid for, at least in part, by the employer.

Career Ladder for this Occupation may look like this:

- Radiologic Instructor or Supervisor
- Chief Technologists
- Staff Radiographer

Employment and Outlook

There were approximately 132,000 radiologic technologists employed nationally in 1988. Employment is expected to grow much faster than the average for all occupations through the year 2000, as new uses are found for "imaging" technologies in the diagnosis and treatment of diseases. New methods in this field will continue to develop. Already in use are computer tomography, magnetic resonance imaging and arteriography.

Opportunities should generally be favorable, with strong demand for radiation therapy technologists. Most jobs will be found in hospitals; however, many technologists will find jobs with walk-in clinics, freestanding imaging centers, medical group practices and health maintenance organizations. In response to rural needs, radiologic technologists travel in large vans equipped with radiological equipment.

Radiologic technologists held about 628 jobs in Oklahoma during 1986. That number is expected to increase to 678 by 1992, which represents a 7.93 percent change. Job openings each year for radiologic technologists will equal approximately 14, with 6 of those due to replacements and 8 created through new jobs.

Related Education and Training

Level(s) of education and training usually needed for this occupation:

- Technical junior or community college
- College bachelor's degree

Level(s) of education and training also available for this occupation:

- High school diploma or G.E.D.
- High school diploma with vocational education

School subjects helpful in preparing for this occupation include:

- Physiology
- Geometry
- Biology
- Physics
- Algebra
- Typing
- Chemistry

More Sources of Information

- American Registry of Clinical Radiography Technologists
  710 Higgins Road
  Park Ridge, IL 60068

- American Society of Radiologic Technologists
  15000 Central Avenue, SE
  Albuquerque, NM 87123

- Society of Diagnostic Medical Sonographers
  12225 Greenville Avenue
  Suite 435
  Dallas, TX 75231

LICENSED PRACTICAL NURSE

Nature of the Occupation

Licensed practical nurses (LPN's) care for ill, injured, convalescent, and handicapped persons in hospitals, clinics, doctors' offices, private homes, nursing homes, medical care facilities, and similar institutions.

Duties may include but are not limited to the following:

- Taking and recording temperature, blood pressure, pulse, and respiration rate
- Dressing wounds
- Administering pre-operative and post-operative care
- Assisting patients in activities of daily living
- Giving enemas, irrigations, and catheterizations
- Applying compresses, ice bags, and hot water bottles
- Observing patients' conditions and charts and reporting reactions to the medical personnel in charge
- Recording food and fluid intake and output
- Monitoring intravenous therapy
- Performing simple diagnostic tests
- Turning patients in bed
- Caring for mothers in labor
- Feeding infants and newborns

Working Conditions

Licensed practical nurses work under the direction of dentists, physicians, or professional (registered) nurses. They may work in modern, well-equipped medical facilities or care for patients in their homes.

Licensed practical nurses generally work a 40-hour week including weekends and holidays on a rotating shift basis.

Licensed practical nurses must stand for long periods of time and help patients move in bed, stand, or walk.

Licensed practical nurses usually are required to purchase their own uniforms, shoes, and watch with a second hand. Some employers may offer a reimbursement plan for the purchase of uniforms.

LPN's may join professional associations such as the National Federation of Licensed Practical Nurses or the National Association for Practical Nurse Education and Service. They may also join unions representing the employees where they work. Members usually pay dues.

Tools, Equipment and Materials used may include:

- Thermometers
- Blood Pressure Devices
- Oxygen Equipment
- Syringes
- Surgical Dressings
- Tracheotomy Tubes
- Suction Machines
- Catheters
- Autoclaves
- Stretchers & Wheelchairs

Worker Requirements

You should like:

- Activities which involve direct contact with people
- Performing duties of a scientific and technical nature

You should be able to:

- Work within precise limits or standards of accuracy
- Follow instructions
- See details and recognize errors in written materials and charts
- Perform a variety of duties which may change often
- Work cooperatively with others

Physically you must:

- Maintain good physical, mental, and emotional health
- Use fingers, hands, and arms easily and skillfully
- Stand or walk for long periods of time

OCCUPATION SPECIALTIES
DOT CODE:
079.374-014 Licensed Practical Nurse
SOC CODE: 366

OKLAHOMA CAREER SEARCH

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LICENSED PRACTICAL NURSE

- Possess good eye and hand coordination
- See and hear well, either naturally or with correction

Special Requirements:
All states and the District of Columbia regulate the training and licensing of LPNs. To be licensed, an individual must have a high school diploma, successfully complete a practical nursing program approved by the state, and pass the state written exam.

Opportunities for Experience:
Helping ill persons at home, serving as a volunteer or paid worker of health organizations, and working as a nurse's aide provide helpful experience in this area. All branches of the military service offer opportunities for experience.

Methods of Entry:
Methods of entering this occupation include direct application to employers and taking civil service exams. Positions may also be located by consulting newspaper want ads, school placement offices, and state employment offices.

Earnings and Advancement

Earnings depend upon the employer, the geographic location, and the shift worked. Nurses employed in larger hospitals in more populated areas tend to receive higher wages.

Earnings:
The median salary of full-time LPNs in 1990 was about $19,019 per year. The middle 50% earned between $15,976 and $23,040. The lowest 10% earned less than $12,824; the top 10% more than $27,713.

Starting salaries of LPNs employed in hospitals in 1990 were about $17,280. LPNs in nursing homes earned a median annual salary of approximately $16,995.

Fringe Benefits:
Depending on the employer, licensed practical nurses may receive paid vacations and holidays; life, accident, disability, and hospitalization insurance; retirement plans; and sick pay. These benefits are usually paid for, at least in part, by the employer.

Career Ladder for this Occupation may look like this:
- Registered Nurse
- Licensed Practical Nurse
- Nurse Aide

Licensed practical nurses may advance by specializing in a particular area through further training and education.

Employment and Outlook

There were approximately 626,000 licensed practical nurses employed nationally in 1988. Employment is expected to increase much faster than the average for all occupations through the year 2000 in response to the long-term care needs of a growing and aging population. Most new jobs for LPNs will open in long-term health care facilities as recent state and federal regulations require nursing homes to employ more LPNs. Rapid growth is also expected in boarding and group homes, physicians' offices, walk-in clinics and health maintenance organizations.

Licensed practical nurses held about 7,654 jobs in Oklahoma during 1986. That number is expected to increase to 8,162 by 1992, which represents a 6.59 percent change. Job openings each year for licensed practical nurses will equal approximately 437, with 352 of those due to replacements and 85 created through new jobs.

Related Education and Training

Level(s) of education and training usually needed for this occupation:
- Technical junior or community college

Level(s) of education and training also available for this occupation:
- High school diploma with vocational education

School subjects helpful in preparing for this occupation include:
- Cooperative Education - Health
- Health Education
- Child Growth & Development
- Algebra
- Biology
- General Science
- Psychology
- First Aid
- Physiology
- Foods & Nutrition
- General Math
- Chemistry
- Physics

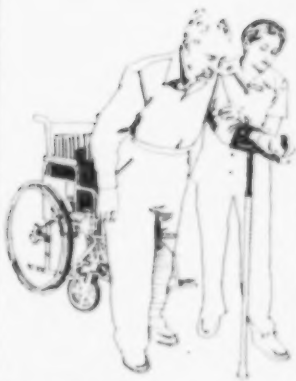
More Sources of Information

- National Federation of Licensed Practical Nurses
  Box 11038
  214 South Driver Street
  Durham, NC 27703

- National Association for Practical Nurse Education and Service
  1400 Spring Street, Suite 310
  Silver Spring, MD 20910

- American Licensed Practical Nurses Association
  1090 Vermont Avenue, NW
  Suite 1200
  Washington, DC 20005

PHYSICAL THERAPIST



Nature of the Occupation

Physical therapists plan and administer medically prescribed treatment programs for patients to restore function, relieve pain, and prevent or limit disability following disease, injury, or the loss of a body part. Their patients may include accident or stroke victims and individuals handicapped by such conditions as multiple sclerosis, cerebral palsy, amputation, fractures, arthritis, and heart disease.

Duties may include but are not limited to the following:

- Evaluating the physician's referral and the patient's medical records to determine the treatment required.
- Performing tests, measurements and evaluations such as range-of motion and manual-muscle tests, gait and functional analyses and body-parts measurements.
- Administering manual therapeutic exercises to improve or maintain muscle function.
- Administering treatments involving the application of such agents as light, heat, water, and electricity.
- Evaluating the effects of treatments and adjusting treatments to achieve maximum benefits.
- Administering deep and surface massage techniques.
- Recording patients' treatments, responses, and progress.
- Training patients in the use of prosthetic and orthopedic devices and recommending modifications.

Occupation Specialties

(Dot codes in parenthesis)

Although physical therapy does not have organized specialties, physical therapists may focus their efforts in the treatment of a specific group or disability in such practice areas as general practice, pediatrics, geriatrics, cardiopulmonary, and orthopedics. They may be designated, for example, as pediatric physical therapists, geriatric physical therapists, or pulmonary physical therapists.

Working Conditions

Physical therapists are often part of a health care team along with physicians, nurses, social workers, occupational therapists, speech therapists, and other specialists.

In most instances, they experience the sights, sounds, odors, and patient behaviors typically found in organizations that treat the sick and injured. They may work in private and public hospitals, clinics, rehabilitation centers, physicians' offices, schools for the handicapped, colleges and universities, research laboratories, government agencies, and patients' homes. Their work is usually indoors in comfortable, well-equipped quarters.

A physical therapist's job can be physically exhausting. In addition to standing for long periods of time, therapists must move equipment and help patients turn, stand, or walk.

The average workweek for a physical therapist is 8 hours a day, 40 hours a week. Some work on weekends may be required.

Most physical therapists belong to the American Physical Therapy Association or the National Association of Physical Therapists. Members pay periodic dues.

Tools, Equipment and Materials used may include:

- Exercise Tables
- Stationary Bicycles
- Walkers
- Wheelchairs
- Practice Stairs
- Braces
- Crutches
- Parallel Bars
- Pulleys & Weights
- Orthoptic & Prosthetic Devices
- Inclined Surfaces
- Moistpacks
- Whirlpools & Hubbard Tanks
- Lamps (ultraviolet & infrared)
- Diathermy
- Ultrasounds
- Low Voltage Generators
- Biofeedback
- Transneural Stimulation
- Surface Electromyography

Worker Requirements

You should like:

- Activities which involve direct personal contact.
- Activities concerned with the communication of ideas.
- Activities of a scientific and technical nature.

OCCUPATION SPECIALTIES

DOT CODE:
- 076.121-014 Physical Therapist
- 076.121-014 Physical Therapist, Pediatric
- 076.121-014 Physical Therapist, Pulmonary
- 076.121-014 Physical Therapist, Research

SOC CODE: 3033

OKLAHOMA CAREER SEARCH

PHYSICAL THERAPIST

You should be able to:
- Reason clearly and logically
- Understand the meanings of words and ideas
- See detail and differences in objects, drawings, or shadings
- Work skillfully with your hands
- Rate information by using standards or personal judgment
- Perform a variety of duties which may change often
- Plan and direct and entire activity or the activities of others

Physically you must:
- Possess good vision and hearing, either naturally or corrected
- Coordinate the movements of eyes and hands or fingers
- Stoop, push, or pull
- Lift and carry patients, equipment, tools, and materials
- Reach for, handle, feel, and manipulate equipment and patients

Special Requirements:
All states require physical therapists to be licensed, with most states requiring graduation from an approved bachelor's degree program. Certification is achieved with graduation from an approved bachelor's degree program which includes clinical experience and passing the licensing exam. Most states have reciprocity agreements. There is no certification given for on-the-job training.

Opportunities for Experience:
Experience may be gained through summer, part-time, or full-time work as a physical therapy aide in hospitals or clinics. Experience is also available through branches of the military service.

Methods of Entry:
Apply directly to hospitals and clinics. Help is also available from college placement offices and by consulting newspaper want ads and other publications.

Earnings and Advancement

Earnings vary according to the size and type of employer and the therapist's length of employment and level of responsibility.

Earnings:
Nationally, in 1990, physical therapists in hospitals earned an average weekly salary of $523, for a yearly salary of $27,171. Some physical therapists earn more than $36,000 a year. Physical therapists employed by the Federal Government earned an average salary of $28,425 in 1990. Those in supervisory positions earned more than $42,060 annually.

Fringe Benefits:
Most physical therapists receive paid vacations, sick leave, hospitalization, life, and disability insurance, and educational leave. These benefits are usually paid for, at least in part, by the employer.

Career Ladder for this Occupation may look like this:
- Therapy Department Head
- Supervisor
- Physical Therapist

Employment and Outlook

There were approximately 68,000 physical therapists employed nationally in 1988. Employment of physical therapists is expected to grow much faster than the average because of rapidly growing demand for rehabilitation services. Many additional openings will result from replacement needs. New graduates are in great demand. In the past, the number of people completing training programs has fallen short of that needed to fill job openings. However, this situation will change as graduates of physical therapy programs enter the workplace.

Physical therapists held about 573 jobs in Oklahoma during 1986. That number is expected to increase to 673 by 1992, which represents a 17.39 percent change. Job openings each year for physical therapists will equal approximately 28, with 11 of those due to replacements and 17 created through new jobs.

Related Education and Training

Level(s) of education and training usually needed for this occupation:
- College bachelor's degree

Level(s) of education and training also available for this occupation:
- College master's degree

School subjects helpful in preparing for this occupation include:
- College Preparatory
- Physical Education
- Algebra
- Geometry
- Trigonometry
- Chemistry
- Humanities
- Health Education
- Physiology
- Biology
- Physics
- Psychology

More Sources of Information

- American Physical Therapy Association
  1111 North Fairfax Street
  Alexandria, VA 22314

- U.S. Physical Therapy Association
  1803 Avon Lane
  Arlington Heights, IL 60004

- National Association of Physical Therapists
  12602 Strathmore
  Garden Grove, CA 92640

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HEALTH OCCUPATIONS CAREER SEARCH ABSTRACTS

DAY 8 ACTIVITIES

PHYSICIAN

Nature of the Occupation

Physicians diagnose and treat human diseases and injuries as well as practice preventive medicine. Physicians may be doctors of allopathic medicine (M.D.) or doctors of osteopathic medicine (D.O.).

Duties may include but are not limited to the following:

- Examining patients
- Ordering or performing various tests, analyses and x-rays
- Prescribing and administering drugs and treatments
- Inoculating and vaccinating patients
- Providing prenatal and postnatal care
- Delivering babies
- Performing surgery and related procedures
- Instructing individuals and organizations in ways to preserve health and prevent disease
- Performing research to aid in control and cure of disease
- Developing and testing new medical techniques
- Investigating new drugs and medications

Occupation Specialties

(Dot codes in parenthesis)

Surgeons (070.101-094) perform operations to correct deformities, repair injuries, prevent diseases, and improve body functions in patients.

Pediatricians (070.101-066) specialize in the diagnosis and treatment of children's diseases from birth through adolescence.

Obstetricians and Gynecologists (070.101-054, 070.101-034) specialize in the care and treatment of women during and immediately following pregnancy and in diseases of the female reproductive organs.

Cardiologists (070.101-014) diagnose and treat diseases of the heart.

Psychiatrists (070.107-014) study, diagnose, and treat mental, emotional, and behavioral disorders.

Podiatrists (079.101-022) diagnose and treat disorders and diseases of the foot and lower leg.

Working Conditions

Physicians may work alone, with other physicians or with the nursing staff. They may supervise interns or residents along with the nursing staff. Physicians generally work in well-lighted and ventilated hospitals, clinics, nursing homes, or offices. They may be exposed to infection from patients, and radioactivity from x-rays.

Hospital or clinical physicians usually work one of three shifts.

Private practice physicians generally maintain regular office hours and an emergency answering service.

Physicians may join associations such as the American Medical Association or the American Osteopathic Association. Members pay dues.

Tools, Equipment and Materials used may include:

- Medical Lab Equipment
- X-ray Equipment
- Surgical Equipment, such as Scalpels, Forceps & Clamps
- Stethoscopes
- Electrocardiographs

Worker Requirements

You should like:

- Activities of a scientific and technical nature
- Helping and working with people
- Working with detail

OCCUPATION SPECIALTIES

DOT CODE

- 070.101-022 General Practioner
- 071.101-010 Osteopathic Physician
- 070.101-094 Surgeon
- 070.101-054 Obstetrician
- 070.101-034 Gynecologist
- 070.101-066 Pediatrician
- 070.101-014 Cardiologist
- 070.107-014 Psychiatrist
- 079.101-022 Podiatrist

SOC CODE 261

OKLAHOMA CAREER SEARCH

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PHYSICIAN

- Variety, requiring the use of different skills
- Working independently

You should be able to:
- Reason clearly and logically
- Work cooperatively with and direct the activities of others
- Make evaluations and decisions based on judgment and data
- Perceive detail in objects, pictures, or graphs
- Communicate effectively in speech and writing

Physically you must:
- See well, naturally or corrected, with good color vision
- Talk and hear
- Have full use of hands and fingers
- Possess excellent eye, hand, and finger coordination

Special Requirements

All fifty states, the District of Columbia, and Puerto Rico require physicians to be licensed to practice medicine. Requirements for licensing are graduation from an accredited medical school, internship and passing a state medical exam. Most states grant reciprocity for licensing.

Most states now require physicians to have 150 hours of continuing education credits every three years for license reregistration.

Methods of Entry

In 1982, 84 percent of all physicians were involved in patient care, with the majority in private practice. Positions with hospitals, clinics, federal and state agencies, and universities may be located by consulting professional journals and medical school placement offices.

Earnings and Advancement

Earnings depend upon whether the physician is salaried or in private practice, the geographic location, higher professional reputation, and length of experience.

Earnings

Nationally, in 1990, physicians in all categories earned an average salary of about $150,000 per year according to The American Medical Association. Physicians who specialize averaged from about $95,000 to over $200,000 depending upon their specialty, number of years in practice, and skill.

In 1990, physicians who worked for the Veterans Administration earned salaries ranging from $58,796 to $102,268 per year.

Medical school graduates serving as residents in hospitals usually receive full or partial room and board plus allowances ranging from $26,000 to $34,000 per year.

Fringe Benefits

Depending on the employer, physicians may receive paid vacations and holidays; retirement plans; hospital and life insurance; educational leaves; and sick pay. These benefits are usually paid for, at least in part, by the employer. Most physicians, however, are self-employed and must arrange for their own health insurance and retirement programs.

Career Ladder for this Occupation may look like this:
- Administrator
- Physician
- Intern or Resident

Physicians may advance through experience and professional competence and demonstrated administrative ability.

Employment and Outlook

There were approximately 535,000 physicians employed nationally in 1988. Employment is expected to grow faster than the average as demand for health care continues to outpace overall economic growth. Newly trained physicians are likely to experience competition as they seek to launch a practice. Those who are willing to locate in inner cities, rural areas, and other places where doctors are not in oversupply should have little difficulty.

Physicians held about 5,764 jobs in Oklahoma during 1986. That number is expected to increase to 6,133 by 1992, which represents a 6.41 percent change. Job openings each year for physicians will equal approximately 416, with 354 of those due to replacements and 62 created through new jobs.

Related Education and Training

Level(s) of education and training usually needed for this occupation:
- College Ph.D. or professional degree

School subjects helpful in preparing for this occupation include:
- College Preparatory
- Physiology
- Geometry
- Trigonometry
- Chemistry
- Physics
- Psychology
- English
- Algebra
- Statistics
- Biology
- Physical Science
- Humanities
- Sociology

More Sources of Information

- American Medical Association
  515 North State Street
  Chicago, IL 60610
- American Medical Women's Association
  465 Grand Street
  New York, NY 10002
- American Osteopathic Association
  142 East Ontario Street
  Chicago, IL 60611

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HEALTH OCCUPATIONS CAREER SEARCH ABSTRACTS

DAY 8 ACTIVITIES

PHYSICIAN'S ASSISTANT

Nature of the Occupation

Physician's assistants provide medical care services to patients under the supervision of a doctor of medicine or osteopathy.

Duties may include but are not limited to the following:

- Taking detailed medical histories and performing physical examinations on patients of all ages
- Ordering laboratory tests, x-ray studies, EKG, and other diagnostic studies as directed by the physician
- Identifying normal and abnormal findings on histories, physical examinations, and commonly performed laboratory studies
- Making decisions regarding management and treatment of patients, and initiating therapy with the physician's approval
- Suturing of wounds, assisting in surgery, applying and removing casts, and performing other therapeutic procedures as directed by the supervising physician
- Making hospital rounds to observe and record the progress patients, update and summarize charts, and order or carry out indicated therapy
- Assisting in providing services to patients who require continuing medical care at home, at a nursing home, or at other extended health care facilities
- Counseling patients and their families on preventive care, medical problems, and the use of prescribed treatments and drugs

Working Conditions

Physician's assistants work under the supervision and direction

of a licensed doctor of medicine or osteopathy who is responsible for their performance. They may work alone or with other health personnel, such as registered nurses and licensed practical nurses.

Physician's assistants usually work in clean, well-lighted and ventilated physicians' offices, clinics, or hospitals. At times, they may be exposed to infection, communicable diseases, and contaminated materials.

Physician's assistants usually work a 40-hour week or may work the same hours as the physicians for whom they are employed. They may be on call 24 hours a day and work as many as 60 to 80 hours a week in order to provide the physician with assistance as needed.

The amount of traveling required depends on whether the physician's assistant works in an urban or rural area. Physician's assistants in urban areas usually travel very little, while those in rural areas may be required to travel considerable distances between the physician's office and hospitals and clinics in the area.

Physician's assistants may belong to the American Academy of Physician Assistants. Members of the association pay fees.

Tools, Equipment and Materials used may include:

- Stethoscopes
- Oto-Ophthalmoscopes
- Surgical Instruments
- X-ray Equipment
- Intravenous & Hypodermic Equipment
- Records, Reports & Manuals
- Electrocardiographs
- Syphgmomanometers (blood pressure apparatus)
- Oxygen and Other Cardio-Pulmonary & Respiratory Equipment
- Medical Laboratory Equipment

Worker Requirements

You should like:

- Activities of a scientific and technical nature
- Working with people

You should be able to:

- Rate information using personal judgment
- Rate information using standards that can be measured
- Deal with people beyond giving and receiving instructions
- Work within precise limits or standards of accuracy

Physically you must:

- Reach, handle, finger, and feel
- Lift and carry objects up to 20 pounds
- Talk and hear
- Have good vision, either naturally or with correction

Special Requirements:

To practice as a physician's assistant in most states, approval is required by the physician's assistant committee of the state licensing and regulation

OCCUPATION SPECIALTIES
DOT CODE:
079.364-018 Physician's Assistant
SOC CODE: 304

OKLAHOMA CAREER SEARCH

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PHYSICIAN'S ASSISTANT

department. To be approved you must pass a proficiency examination after completing an acceptable physician's assistant program. The examination is available through the National Commission on Certification of Physician's Assistants (NCCPA). In addition, 100 hours of continuing professional medical education is required every two years by the NCCPA to maintain accreditation.

Methods of Entry:

The most common method of entry is completion of a physician's assistant program. Assistance in locating a position may be obtained from school placement offices. Graduates who belong to the American Academy of Physician Assistants or state affiliations may use their national employment listing services. For information about positions in government, apply to local, state, or federal civil service offices.

Earnings and Advancement

A physician's assistant's earnings may vary according to the size and geographic location of the employing physician's practice as well as the individual physician's assistant's education and experience.

Earnings:

Nationally, in 1990, physician's assistants employed in hospitals and medical centers earned a starting salary of approximately $29,100. The middle 50% earned between $25,800 and $29,100 per year. Experienced physician's assistants earned an average yearly salary of $38,800. The average salary of physician's assistants working in all settings was approximately $37,000 in 1990.

Career Ladder for this Occupation may look like this:

There is no career ladder for physician's assistants. However, they may receive salary increases, which can be considered a form of advancement.

Employment and Outlook

About 48,000 physician's assistants were practicing in 1988. Job opportunities for physician's assistants through the year 2000 are expected to reflect much faster than average employment growth as well as the need to replace experienced assistants who leave the profession. The occupation, though still small, has experienced extraordinary growth. New graduates may have to accept jobs in medically underserved areas, but they do not view this as a hardship. Most students prefer to practice in a small city or town. Long-term prospects for assistants are difficult to assess, largely because of unresolved issues in health policy. Another unsettling factor is the diversity of state laws that regulate the kinds of service assistants perform.

Physician's assistants held about 515 jobs in Oklahoma during 1986. That number is expected to increase to 552 by 1992, which represents a 6.79 percent change. Job openings each year for physician's assistants will equal approximately 12, with 6 of those due to replacements and 6 created through new jobs.

Related Education and Training

Level(s) of education and training usually needed for this occupation:

- College bachelor's degree

School subjects helpful in preparing for this occupation include:

- College Preparatory
- Dental/Medical Assistant
- General Math
- Chemistry
- Cooperative Education - Health
- Health Education
- Biology
- Psychology

More Sources of Information

- Information Services
  American Academy of
  Physician Assistants
  950 North Washington Street
  Alexandria, VA 22314

- American Medical Association
  535 North Dearborn Street
  Chicago, IL 60610-4377

- National Commission on
  Certification of Physician's
  Assistants
  2845 Henderson Mill Rd., NE
  Atlanta, GA 30341

- Association of Physician
  Assistant Programs
  1117 North 19th Street
  Suite 300
  Arlington, VA 22209

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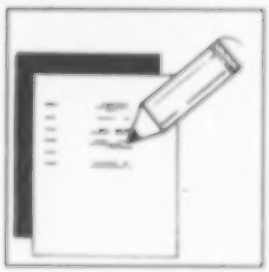
TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

DAY 8 ACTIVITIES

POSTTEST

INSTRUCTIONS



You will need a computer scan sheet or card to record your answers to the following Posttest. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 36 - 45 to record the answers to the Posttest. If your answers will be hand-scored, use a blank sheet of notebook paper to record your answers and number your answers 36 - 45.

SPELLING TEST INSTRUCTIONS

Use rows 46 - 55 on the test card. If the word is spelled correctly, mark (a) on the computer score sheet or card. If the word is spelled incorrectly, mark (b) on the test card. Be sure to use a #2 pencil and make your marks dark. If your answers will be hand-scored, use a blank sheet of notebook paper to record your answers and number your answers 46 - 55.

(a) correct (b) incorrect

Get Posttest Questions from your instructor.

When you finish the Posttest, give the Posttest and your answers to your instructor.

If you finish Day 8 Activities with time left over, you may begin the Skunk Works Activity.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

SKUNK WORKS

BACKGROUND

The term *Skunk Works* comes from an engineering division of the 3M Company. In the late 1960s a group of engineers at 3M wanted to design a new product, but the managers of the company would not give them the time or money for research. So they decided to design the product anyway, then try to convince the company to market it. Whenever the engineers could grab a few extra minutes from their regular assignments, they worked on the new product. In early 1969 they presented it to the marketing division of 3M, and the company has been selling it ever since. The product: Velcro fasteners.

CHALLENGE

In this Skunk Works, you will design a flow chart, using the knowledge you have learned from playing the computer game, *Life & Death II*. The flow chart starts from the time the patient is admitted to the hospital to the time the patient is released from the hospital.

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

SKUNK WORKS

TOOLS AND MATERIALS

- Fifteen 3" x 5" note cards
- One poster board (about 27" x 22")
- Rubber cement
- Ruler
- Marker

TECHNOLOGY EDUCATION
HEALTH OCCUPATIONS

SKUNK WORKS

PROCEDURE

FOLLOW THESE STEPS:

STEP 1: Write each of the following phrases on a 3" x 5" inch note card:

- Conduct a physical examination of the patient
- Operate on the patient
- Patient admitted to the hospital
- Post-operative care (that is, medical care after an operation)
- Record patient's medical history
- Prescribe drugs or observe the patient
- Study patient's symptoms
- Patient released from the hospital

STEP 2: Design a flow chart with the cards you made in STEP 1.

A flow chart is a diagram that shows the sequence of an event.

Your flow chart should show the correct procedure of diagnosing the patient from the patient's admission to the hospital to his or her release from the hospital.

STEP 3: Make some more cards to add information to the chart. You may use the knowledge you have learned from playing the computer game and reading the information sheets in this TLA, *Life & Death II*.

For instance, the "Record patient's medical history" card may have an additional card, such as "history of contracting the same disease."

Also, "Conducting a physical examination" might include "Administer an X ray examination."